VOLUME VIII NUMBER 2

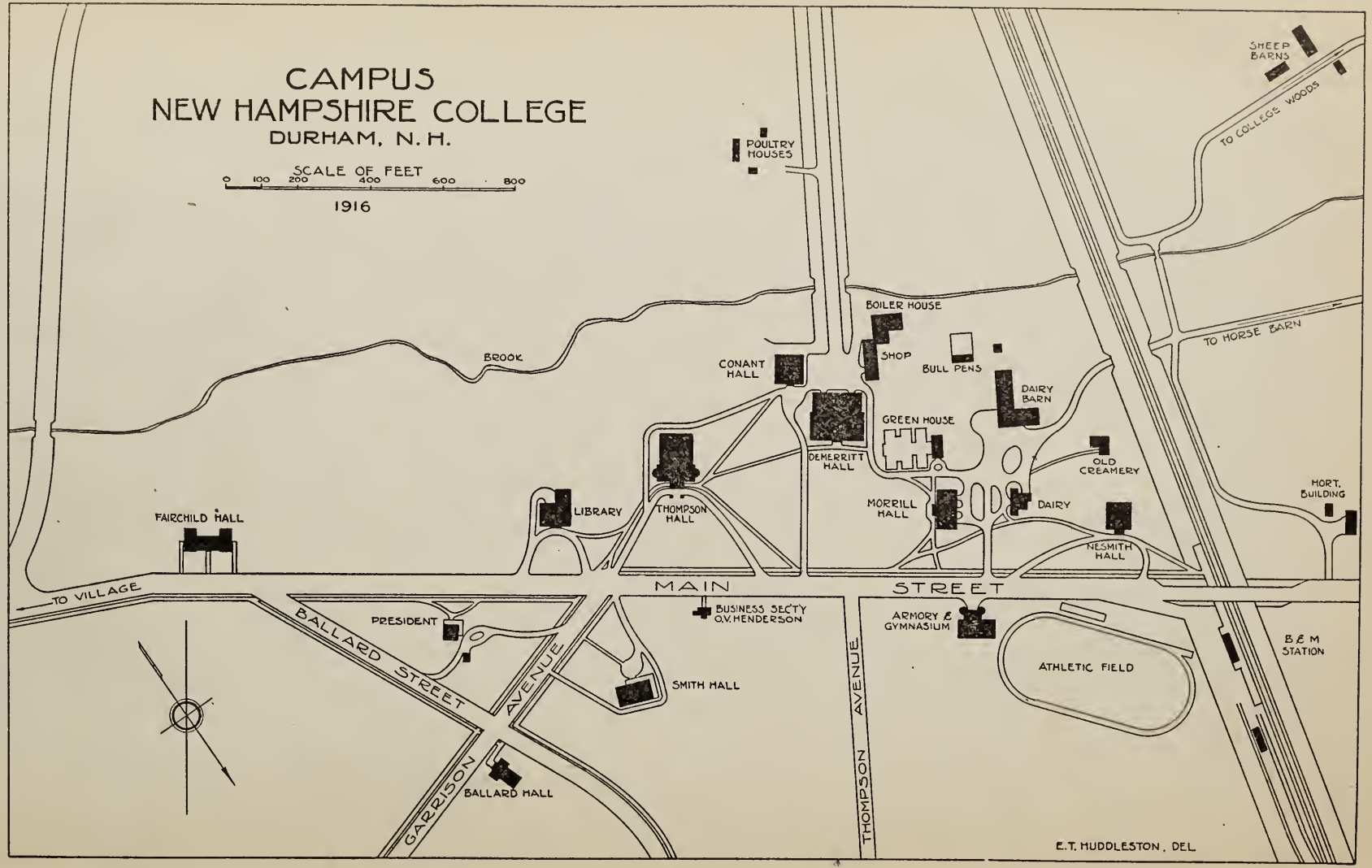
The New Hampshire College Announcement and Register

1917–1918

FORTY-NINTH YEAR

REGISTER, - - 1916-1917
ANNOUNCEMENT, 1917-1918

Durham, New Hampshire
Published by the College


CAMPUS
NEW HAMPSHIRE COLLEGE
DURHAM, N. H.
SCALE OF FEET
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1916
POULTRY HOUSES
SHEEP BARNS
TO COLLEGE WOODS
BOILER HOUSE
SHOP
BULL PENS
TO HORSE BARN
BROOK
CONANT HALL
DAIRY BARN
GREEN HOUSE
DEMERRITT HALL
OLD CREAMERY
HORT. BUILDING
FAIRCHILD HALL
LIBRARY
THOMPSON HALL
MORRILL HALL
DAIRY
NESMITH HALL
MAIN STREET
TO VILLAGE
BUSINESS SEC'Y O.V. HENDERSON
ARMORY & GYMNASIUM
PRESIDENT
BALLARD STREET
AVENUE
SMITH HALL
ATHLETIC FIELD
B & M STATION
THOMPSON AVENUE
GARRISON
BALLARD HALL
E.T. HUDDLESTON, DEL

The New Hampshire College of Agriculture and the Mechanic Arts Bulletin

Durham, New Hampshire

APRIL, 1917

Entered as second class matter, August 5, 1907, at the Post Office at Durham, N. H., under the Act of Congress of July 16, 1894

CALENDAR

1917

JANUARY.						
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OCTOBER.						
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NOVEMBER.						
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DECEMBER.						
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COLLEGE CALENDAR.

1917.

First Semester.

Entrance Examinations begin	*Tuesday, September 11.*
Registration Day	*Wednesday, September 19.*
Address to Student Body	*Thursday, September 20.*
Meeting of Trustees	*Wednesday, October 10.*
Columbus Day	*Friday, October 12.*
College closes at noon	*Wednesday, November 28.*
College opens at noon	*Monday, December 3.*
College closes, 4 p.m.	*Friday, December 21.*

1918.

College opens at noon	*Monday, January 7.*
Meeting of Trustees	*Wednesday, January 9.*
Midyear Examinations begin	*Monday, January 28.*
Midyear Examinations close	*Saturday, February 2.*

Second Semester.

Registration Day	*Monday, February 4.*
Washington's Birthday	*Friday, February 22.*
No exercises after 10 a.m.	*Tuesday, March 12.*
College closes, 4 p.m.	*Tuesday, April 2.*
College opens, 8 a.m.	*Wednesday, April 10.*
Meeting of Trustees	*Wednesday, April 10.*
Junior Promenade begins, 4 p.m.	*Thursday, May 9.*
Junior Promenade closes, 2 p.m.	*Sunday, May 12.*
Graduation Two-year Course	*Wednesday, May 15.*
Memorial Day	*Thursday, May 30.*
Senior Examinations close, 4 p.m.	*Tuesday, June 4.*
Final Examinations begin	*Monday, June 3.*
Final Examinations close	*Saturday, June 8.*
Baccalaureate Sermon	*Sunday, June 9.*
Class Day	*Tuesday, June 11.*
Meeting of Trustees	*Tuesday, June 11.*
Commencement Day	*Wednesday, June 12.*

BOARD OF TRUSTEES.

His Excellency, Governor HENRY W. KEYES, A.B., B.S., *ex-officio.*

President *ex-officio.*

*Hon. HARVEY L. BOUTWELL, B.S., LL.D., Malden, Mass., *President.*
Sept. 1, 1911, to Sept. 1, 1917.

Hon. JAMES A. TUFTS, A.B., Exeter, *Secretary.*
Jan. 10, 1914, to June 14, 1919.

Hon. WALTER DREW, Colebrook.
Aug. 30, 1902, to Aug. 30, 1917.

*Hon. EDWARD H. WASON, B.S., D.Sc., Nashua.
Jan. 16, 1906, to Aug. 1, 1919.

Hon. GEORGE H. BINGHAM, A.B., LL.B., Manchester.
Dec. 2, 1908, to Dec. 2, 1917.

Hon. RICHARD W. SULLOWAY, A.B., Franklin.
May 13, 1909, to Oct. 9, 1918.

Hon. WILLIAM H. CALDWELL, B.S., Peterborough.
July 29, 1912, to July 29, 1918.

Hon. EUGENE S. DANIELL, Greenland.
June 14, 1916, to June 14, 1919.

Hon. ROY D. HUNTER, West Claremont.
June 14, 1916, to June 14, 1919.

Hon. HENRY C. PHILLIPS, Haverhill.
Nov. 24, 1916, to July 17, 1917.

Hon. DWIGHT HALL, A.B., Dover.
Oct. 29, 1915, to Oct. 17, 1918.

OFFICERS OF ADMINISTRATION.

President of the College.

CHARLES H. PETTEE, A.M., C.E., LL.D., *Dean of the College, Acting President.*

FREDERICK W. TAYLOR, B.Sc. (Agr.), *Dean of Agricultural Division.*

CHARLES E. HEWITT, B.S., M.M.E., *Dean of Engineering Division.*

ERNEST R. GROVES, A.B., B.D., *Dean of Arts and Science Division.*

* Elected by the Alumni.

HELEN KNOWLTON, A.B., *Dean of Women.*
JOHN C. KENDALL, B.S., *Director of Experiment Station and Extension Work.*
CONDA J. HAM, A.B., *Registrar and Secretary of the Faculty.*
WALTER M. PARKER, A.B., *Treasurer.*
OREN V. HENDERSON, *Business Secretary.*
CHARLES W. STONE, A.M., *Superintendent of Farm.*
OSCAR W. STRAW, *Superintendent of Power and Service and Curator of Buildings.*

ASSISTANTS IN ADMINISTRATION.

MARTHA F. EMERSON, *Librarian.*
CHARLOTTE A. THOMPSON, *Assistant Librarian.*
CAROLINE A. BARSTOW, *Assistant Librarian.*
MARCIA N. SANDERS, *Matron of Smith Hall.*
ELIZABETH P. DEMERITT, *Matron of Ballard Hall.*
ARABELLA S. LIVINGSTON, *Matron of Bickford Hall.*
NATHANIEL E. CURTIS, *Proctor of Fairchild Hall.*
ANNIE J. MORGAN, *Manager of Book Store.*
VELMA W. DAVIS, *Secretary to the President.*
BEATRICE M. RICHMOND, *Bookkeeper.*
BEULAH M. MADDOX, *Secretary to the Business Secretary.*
MARTHA C. BLODGETT, A.B., *Secretary to the Dean.*

THE COLLEGE FACULTY* AND TEACHING STAFF.

President of the College.

PROFESSORS†.

CHARLES H. PETTEE, A.M., C.E., LL.D., *Dean and Professor of Mathematics.*
CLARENCE W. SCOTT, A.M., LL.D., *Professor of History.*
FREDERICK W. TAYLOR, B.Sc. (Agr.), *Dean of Agricultural Division and Professor of Agronomy.*
RICHARD WHORISKEY, JR., A.B., *Professor of Modern Languages.*
CHARLES E. HEWITT, B.S., M.M.E., *Dean of Engineering Division and Professor of Electrical Engineering.*
ERNEST R. GROVES, A.B., B.D., *Dean of Arts and Science Division and Professor of Sociology.*
C. FLOYD JACKSON, B.S., A.M., *Professor of Zoölogy and Entomology.*

* The faculty is composed of the president of the college, full professors, associate professors, assistant professors, and the director of the experiment station and of extension work.

† Arranged in order of seniority of appointment.

WALTER C. O'KANE, A.M., *Professor of Economic Entomology.*
CHARLES JAMES, F.I.C., *Professor of Chemistry.*
ALFRED E. RICHARDS, PH.D., *Professor of English.*
ORMOND R. BUTLER, PH.D., *Professor of Botany.*
JOSEPH H. GOURLEY, M.S., *Professor of Horticulture.*
OTTO L. ECKMAN, B.S. (Agr.), *Professor of Animal Husbandry.*
JOHN C. KENDALL, B.S., *Director of Experiment Station and Extension Work.*
ERIC T. HUDDLESTON, B.ARCH., *Professor of Drawing and Design.*
CHARLES L. SIMMERS, A.B., *Professor of Education and Psychology.*
ROY H. PORTER, B.S., M.E., *Professor of Mechanical Engineering.*
WILLIAM H. COWELL, B.S., *Physical and Athletic Director.*
KARL W. WOODWARD, A.B., M.F., *Professor of Forestry.*
ROBERT V. MITCHELL, B.S., *Professor of Poultry.*
HELEN KNOWLTON, A.B., *Dean of Women and Professor of Home Economics.*
JOHN M. FULLER, B.S., *Professor of Dairying.*
VERNON A. SUYDAM, PH.D., *Professor of Physics.*
CHARLES A. HUNT, B.S., *Captain U. S. Infantry, Professor of Military Science and Tactics.*

ASSOCIATE PROFESSORS.*

FRANK C. MOORE, A.B., *Associate Professor of Mathematics.*
GEORGE A. PERLEY, M.S., *Associate Professor of Chemistry.*
CHARLES C. STECK, A.B., M.S., *Associate Professor of Mathematics.*
CAROLINE A. BLACK, PH.D., *Associate Professor of Botany.*
WILLIAM H. WOLFF, M.S., *Associate Professor of Pomology.*

ASSISTANT PROFESSORS.*

LEON W. HITCHCOCK, B.S., *Assistant Professor of Electrical Engineering.*
HAROLD H. SCUDDER, B.S., *Assistant Professor of English.*
FORD S. PRINCE, B.S., *Assistant Professor in Agronomy.*
FRIEDA REINER, B.S., *Assistant Professor in Home Economics.*
W. ROSS WILSON, B.S. (Agr.), *Assistant Professor in Dairying.*
OLUS J. STEWART, PH.B., A.B., M.S., *Assistant Professor in Chemistry.*
JOHN B. SCHERRER, B.S., *Assistant Professor in Vegetable Gardening.*
MARION O'K. McKAY, B.S., A.B., A.M., *Assistant Professor in Economics.*
WILLIAM H. SEVERNS, B.S., M.S., *Assistant Professor in Mechanical Engineering.*

* Arranged in order of seniority of appointment.

INSTRUCTORS.*

THOMAS J. LATON, B.S., *Instructor in Drawing.*
CLEMENT MORAN, A.B., *Instructor in Physics.*
CONDA J. HAM, A.B., *Instructor in Accounting.*
HARRY P. YOUNG, B.S., *Instructor in Agronomy.*
JAMES MACFARLANE, *Instructor in Floriculture.*
CLIFFORD J. FAWCETT, B.S., *Instructor in Animal Husbandry.*
LYMAN J. BATCHELDER, *Instructor in Wood Shop and Foundry Practice.*
ELIZABETH A. ROLLINS, *Instructor in Physical Culture.*
CHARLES H. BATCHELDER, B.S., M.S., *Instructor in Zoölogy.*
SHIRLEY E. CULVER, A.M., *Instructor in Modern Languages.*
CARL A. GARABEDIAN, B.S., M.S., *Instructor in Mathematics.*
HAROLD D. McBRIDE, *Instructor in Machine Work and Forging.*
FRED N. RAYMOND, B.S., *Instructor in Modern Languages and English.*
CLYDE C. WHIPPLE, B.S., *Instructor in Electrical Engineering.*
WALTER D. EMERSON, B.S., *Instructor in Mechanical Engineering and Physics.*
WILLIAM L. DORAN, B.S., *Instructor in Botany.*

ASSISTANTS.*

CLARENCE R. CLEVELAND, A.B., *Assistant in Economic Entomology.*
ARTHUR S. AMBROSE, B.S., *Assistant in Dairying.*
ARNOLD J. GRANT, B.S., *Assistant in Chemistry.*
RAYMOND J. BEAN, B.S., M.S., *Assistant in Zoölogy.*
ALBERT W. GAMASH, B.S., *Assistant in Forestry.*
CHARLES F. SCOTT, B.S., *Assistant in Political Science.*
ARABELLA S. LIVINGSTON, B.S., *Assistant in Home Economics.*
LELAND CRAFTS, B.S., *Assistant in Modern Languages and English.*

*Arranged in order of seniority of appointment.

NEW HAMPSHIRE AGRICULTURAL EXPERIMENT STATION.

THE STATION STAFF.

CHARLES H. PETTEE, A.M., C.E., LL.D., *Acting President.*
JOHN C. KENDALL, B.S., *Director.*
F. W. TAYLOR, B.Sc. (Agr.), *Agronomist.*
B. E. CURRY, A.B., *Chemist.*
W. C. O'KANE, A.M., *Entomologist.*
J. H. GOURLEY, M.S., *Horticulturist.*
O. R. BUTLER, PH.D., *Botanist.*
E. G. RITZMAN, B.S., *Animal Husbandman.*
K. W. WOODWARD, A.B., M.F., *Forester.*
J. M. FULLER, B.S., *Dairyman.*
W. H. WOLFF, M.S., *Assistant Horticulturist.*
T. O. SMITH, A.B., *Assistant Chemist.*
J. B. SCHERRER, B.S., *Assistant in Vegetable Gardening.*
FORD S. PRINCE, B.S., *Assistant Agronomist.*
C. R. CLEVELAND, B.S., *Assistant Entomologist.*
HARRY P. YOUNG, B.S., *Assistant Agronomist.*
A. W. GAMASH, B.S., *Assistant Forester.*
JAMES MACFARLANE, *Florist.*
W. L. DORAN, B.S., *Assistant Botanist.*
A. D. LITTLEHALE, *Shepherd.*

Assistants to the Staff.

MARTHA F. EMERSON, *Librarian.*
O. V. HENDERSON, *Purchasing Agent.*
BEATRICE M. RICHMOND, *Bookkeeper.*
LAURA B. BICKFORD, *Stenographer.*
ELIZABETH E. MEHAFFEY, *Assistant Librarian and Mailing Clerk.*
BEATRICE E. CARLISLE, *Stenographer.*

THE EXTENSION SERVICE.

GENERAL EXTENSION STAFF.

CHARLES H. PETTEE, A.M., C.E., LL.D., *Acting President.*
J. C. KENDALL, B.S., *Director of Extension Work.*
M. C. WILSON, B.S., *State Leader, County Agent Work.*
W. P. DAVIS, *In Charge Dairy Cow Test Association Work.*
C. L. LONG, M.S., *In Charge Orchard Demonstrations.*
SARAH L. BATES, *In Charge Extension Work in Home Economics.*
L. A. CARLISLE, B.S., *In Charge Boys' Club Work.*
MARY L. SANBORN, *In Charge Girls' Club Work.*
R. F. TABER, B.Sc., *Farm Management Demonstrator.*
B. B. RICHARDSON, B.S.A., *Assistant in Boys' Club Work.*
BEULAH I. HAZARD, *Assistant in Girls' Club Work.*

County Agents.

H. N. WELLS, *County Agent, Sullivan County.*
F. N. DARLING, B.S., *County Agent, Cheshire County.*
E. T. LEWIS, *County Agent, Coös County.*
A. G. DAVIS, *County Agent, Merrimack County.*
A. W. BENNER, *County Agent, Grafton County.*
F. L. BALLARD, B.S., *County Agent, Hillsboro County.*
R. E. DEUEL, B.S.A., *County Agent, Rockingham County.*
M. J. McNAMARA, B.S., *County Agent, Belknap County.*

Assistants to the Staff.

MARTHA E. FISHER, *Stenographer.*
KATHARINE H. PIPER, *Stenographer.*

HISTORICAL SKETCH.

The New Hampshire College of Agriculture and the Mechanic Arts was created by an act of the New Hampshire legislature in 1866 and was established at Hanover as a state institution, in connection with Dartmouth College. In its foundation the state legislature had accepted the conditions of an act of the federal congress of July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts." The state had accepted the land grant three years earlier, July 9, 1863.

In 1893 the college was moved from Hanover to Durham. This action followed the death of Benjamin Thompson, a farmer of Durham, who died January 30, 1890, and left to the college his entire estate, excepting a few minor reservations. The legislature accepted this bequest March 5, 1891, and appropriated the necessary money for the first buildings.

Mr. Thompson wrote in his will, "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state . . . shall be called and designated . . . The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college."

Shortly before the state accepted this bequest of Mr. Thompson the legislature further provided for the college by

accepting the provisions of an act of congress known as the Morrill Bill. This legislation made available federal appropriations "for instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Although the college was able to make use of the Thompson land as early as 1893, it was not until 1910 that the income from this endowment of almost $800,000 became available. At present the college has an annual income from the Thompson funds of nearly $32,000. It also receives the moneys which are available as the result of the acts of congress referred to, and the biennial appropriations of the state legislature.

The college administration is in charge of a board of thirteen trustees. The governor of the state and the president of the college are *ex-officio* members. The college alumni elect two trustees and the others are appointed by the governor with the advice and consent of the council.

EXPERIMENT STATION.

A branch of the college, known as the New Hampshire Agricultural Experiment Station, was established by the state, August 4, 1887, under an act of congress of March of that year. Its purpose is to acquire agricultural knowledge and to bring its information to the people of the state. The station is actively engaged in this work not only in Durham but throughout the commonwealth. Members of the agricultural faculty of the college serve on the station staff. There is also an extension department with a staff of twenty who are devoting their entire time to demonstration work on the farm, in the home and to agricultural clubs.

GENERAL INFORMATION.

Situation.—Durham, the home of the college, is an attractive village, on the Portland division of the Boston and Maine railroad sixty-two miles from Boston, fifty-four from Portland, Me., and five from Dover, N. H., a city of 13,000 population. Good train service makes the college easily accessible from all parts of the state.

Durham is one of the historic towns of New Hampshire. In the early days it was the home of a prosperous ship-building industry. Being at the head of tidewater on the Oyster River, it served as a distributing center for the interior of the state. During the Revolutionary War it was famous as the home of General John Sullivan. Near his home in the village the state has erected a fitting monument to his memory.

Courses.—The college is a part of the public school system of the state, continuing the work of the high school, and it is open to both men and women. In accord with the origin and function of the college, its courses are essentially practical, leading directly to the student's preparation for a successful livelihood.

I. Agricultural Division.

a. Four-Year Courses.
1. Animal Husbandry and Dairying.
2. Forestry.
3. Horticulture.
4. General Agriculture or Teaching.

b. Two-Year Course in Agriculture.

c. Five-Week Course in Dairying.

d. Four One-Week Winter Courses in Agronomy, Forestry and Horticulture.

e. Farmers' One-Week Course.

II. Arts and Science Division.

a. Four-Year Courses.
1. General Arts and Science.

2. Home Economics.
3. Mechanic Arts for Teachers.

III. Engineering Division.

a. Four-Year Courses.

1. Chemical Engineering.
2. Electrical Engineering.
3. Mechanical Engineering.

b. Two-Year Courses.

1. Industrial Electricity.
2. Industrial Mechanics.

ESTIMATE OF STUDENT EXPENSES

	First Semester.			Second Semester.		
	High.	Average Student.	Low.	High.	Average Student.	Low.
Tuition	$30.00	*	*	$30.00	*	*
Fees	10.00	$10.00	$10.00	10.00	$10.00	$10.00
Room	42.00	35.00	16.00	42.00	35.00	16.00
Books	10.00	9.00	8.00	10.00	9.00	8.00
Laboratory fees	5.00	2.00		5.00	2.00	
Athletics	4.50	4.00				
Laundry	8.00	5.00	2.00	8.00	5.00	2.00
Incidentals	25.00	10.00	5.00	20.00	8.00	4.00
Military suit	22.00	†	†			
	$156.50	$75.00	$41.00	$125.00	$69.00	$40.00

Board.—To the above must be added an amount necessary to pay table board. Owing to the excessive fluctuations in food costs, it has been impossible to include a fair estimate of board for next year. This will be controlled by the general price level at that time. At the college dormitory the price of board for the women students has remained at $4.25, while the men have paid somewhat more than this in the village. However, many of the men are able to materially lower the weekly cost by partially boarding themselves. The usual time students are present and pay board is 34 weeks. Two-year men have four weeks less

* Scholarships.

† Furnished by government to four-year men.

board to pay than four-year students, but this is partially offset by the cost of the military uniform which is not furnished free to them by the government.

Tuition and Fees.—Tuition is $60 a year; incidental fees are $20 a year. They are payable in advance in two equal instalments, one on the first day of each semester. A diploma fee of $5.00 is charged upon graduation. Fees for supplies and breakage are assessed in chemistry and certain other subjects where necessary.

Dormitories.—The college has three dormitories for women and one for men. All rooms are heated, lighted and furnished with the exception of bed linen, quilts and towels, which are provided by the individual students. Each women's dormitory is equipped with a laundry. In most cases, two students occupy a room or suite of rooms. Prices range from $60 to $84 for each student per year. Applications for rooms in the dormitories should be made directly to Mr. O. V. Henderson, business secretary of the college. Early application is necessary in order to secure a choice of rooms. Rooms in private families may be secured for about the same prices as for those in dormitories. Less desirable, but comfortable rooms may be obtained by men in several private dormitories at a somewhat less figure.

Women students, unless living at home, are required to room in one of the women's dormitories, or in approved houses.

Scholarships.—Scholarships are awarded annually for the purpose of aiding deserving students. Recently, the large increase in student attendance has utilized to the full all scholarships thus far provided. However, the trustees are anxious to supply scholarships to all really needy young men and women in New Hampshire. In order to do this, they necessarily require full information of all applicants in order that the benefits may be awarded most equitably.

These scholarships will be forfeited at any time for misconduct, or for the use of intoxicating liquor or tobacco.

They will also be withdrawn from students in all four-year courses who fail to secure an average grade of sixty in any one semester, and, only in cases of special financial necessity, will they be restored by the president.

Conant Scholarships.—There are twenty-seven Conant scholarships, each paying tuition, $60; fees, $20; cash, $20,—total, $100. These are assigned under the following conditions:

They are to be given to young men taking agricultural courses.

Each town in Cheshire County is entitled to one scholarship, and Jaffrey is entitled to two.

They will be reserved for their respective towns until August 1 of each year. Those not taken by students from Cheshire County, and those in excess of the number of towns, will then be assigned to agricultural students from other parts of the state, and may be divided at the discretion of the president. These scholarships are assigned annually and are good for one year only.

Senatorial Scholarships.—There are twenty-four senatorial scholarships, one for each senatorial district. They are at the disposal of the senators from these districts. These scholarships are to be assigned each year and are good for one year only. Each one pays the tuition of $60. The method of appointment is entirely at the option of the senator concerned and may be by election, competitive examination, or otherwise. It is hoped, however, that preference will be given to needy applicants. These scholarships are open to students in all courses, but are restricted to residents of the state.

Grange Scholarships.—For several years a scholarship paying tuition of $60 has been placed at the disposal of each subordinate and Pomona Grange in New Hampshire, for the use of a four-year or two-year student. These scholarships are to be assigned each year and are good for one year only. The method of appointment is entirely at the option of the grange; it may be by election, competitive

examination, or otherwise. It is hoped, however, that preference will be given to needy applicants. Holders of these scholarships need not be members of the grange, but must be resident within the state.

Valentine Smith Scholarships.—Through the generosity of the late Mr. Hamilton Smith of Durham, the sum of $10,000 has been given to the college to establish the Valentine Smith scholarships.

"The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college."

These scholarships yield $100 annually and will be forfeited if an average rank of 75 per cent. is not maintained for each semester.

Competitive examinations for this scholarship will be held June 26, 27 and 28 in Durham, Keene, Laconia, Lancaster, Manchester and West Lebanon. Contestants must present credentials fulfilling the requirements for entrance to the college and must pass examinations in English, American history, algebra through quadratics, plane geometry and either physics or chemistry.

Examinations are not restricted to residents of the state. For examination schedule see page 48.

State Scholarships.—By an annual scholarship appropriation of $3,000, the state provides free tuition for fifty New Hampshire students. These scholarships are awarded annually strictly on the basis of financial need, and are good for one year only. Applicants must furnish full information in relation to their own financial status and that of their parents.

Prizes.—*Bailey Prize.*—Dr. C. H. Bailey of Gardner, Mass., and E. A. Bailey, B.S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

Erskine Mason Memorial Prize.—Mrs. Erskine Mason of Stamford, Conn., has invested one hundred dollars as a memorial to her son, a member of the class of 1893, the in-

come of which is to be given, for the present, to that member of the senior class who has made the greatest improvement during his course.

Chase-Davis Memorial Medals.—In the spring of 1909 the Glee Club voted to present a gold and a silver medal yearly to the college in memory of Carl Chase, '09, of Webster, an enthusiastic member of the New Hampshire football team and the Glee Club, and of John Worthen Davis, '11, of Concord, who were drowned in Great Bay, December 7, 1908.

According to the terms of this gift, the gold medal is to be awarded to the senior who has won an "N. H." and stands highest in his studies, and the silver medal is to be awarded to the senior who has won an "N. H." and stands second in his studies. These medals are for excellence in athletic competition primarily, and the number of times a man wins an "N. H." during his college career shall be of importance in making the award.

Individual Drill Prizes.—First—A gold medal. *Second*—A silver medal. *Third*—A bronze medal. These are given by the college.

Junior Officer's Prize.—A saber, with belt complete, given to the junior cadet officer who excels in executing certain required movements or evolutions with a company.

Chi Omega Prize.—The Chi Omega Sorority of New Hampshire College offers a prize of ten dollars for the best thesis on a sociological subject written by a woman student in sociology 52, 54, or 58.

Lilian S. Edwards Prize.—A fund has been provided by Mrs. Lilian S. Edwards of Sanbornville for the publishing and distribution of the best thesis on a sociological subject written by a student for the Department of Sociology during the second semester of the college year.

Alumni Interscholastic Speaking Prize.—The alumni association of New Hampshire College donates each year the sum of $30 to be given in prizes at the interscholastic prize speaking contest held under the auspices of the English

Department of the college. This year the contest will be held May 18, 1917, at 8 p. m., in the college gymnasium. In addition to the original amount contributed by the alumni association, a gift of $20 has been received from a friend of the college, making the total amount in prizes $50. This sum will be divided among the winners of the contest as follows: first prize, open to all candidates, $20; second prize for boys, $10; second prize for girls, $10; third prize for boys, $5; third prize for girls, $5. Any student in good standing at a certified high school is eligible, provided the candidate has not already received the first prize at any other interscholastic prize speaking contest conducted by the college. Further information may be obtained from Professor A. E. Richards, English Department, New Hampshire College.

College Aid to Students.—Students obtain considerable financial aid by janitorships, by table work at boarding clubs, and by work on the farm and in the greenhouse. They also find employment with the power and service department of the college and with the experiment station. However, so much depends upon the individuality of the student that the college can guarantee nothing in any particular case, but is glad to assist by informing students of opportunities for work.

Students may purchase at cost all books, drawing instruments, materials, etc., at the college book-store in Thompson Hall.

Registration.—Undergraduate students are required to register before 4 p. m. of the first day of each semester. Registration will open on August 1. Those desiring to register by mail or in person after August 1, should write the registrar for registration blanks, which, when filled out, should be forwarded to the business secretary, together with the student's remittance for his semester's tuition, and fees.

Any former student who registers after the first day of a semester will be charged for such registration a fine of one dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president

upon presentation by the student of a substantial excuse for delay.

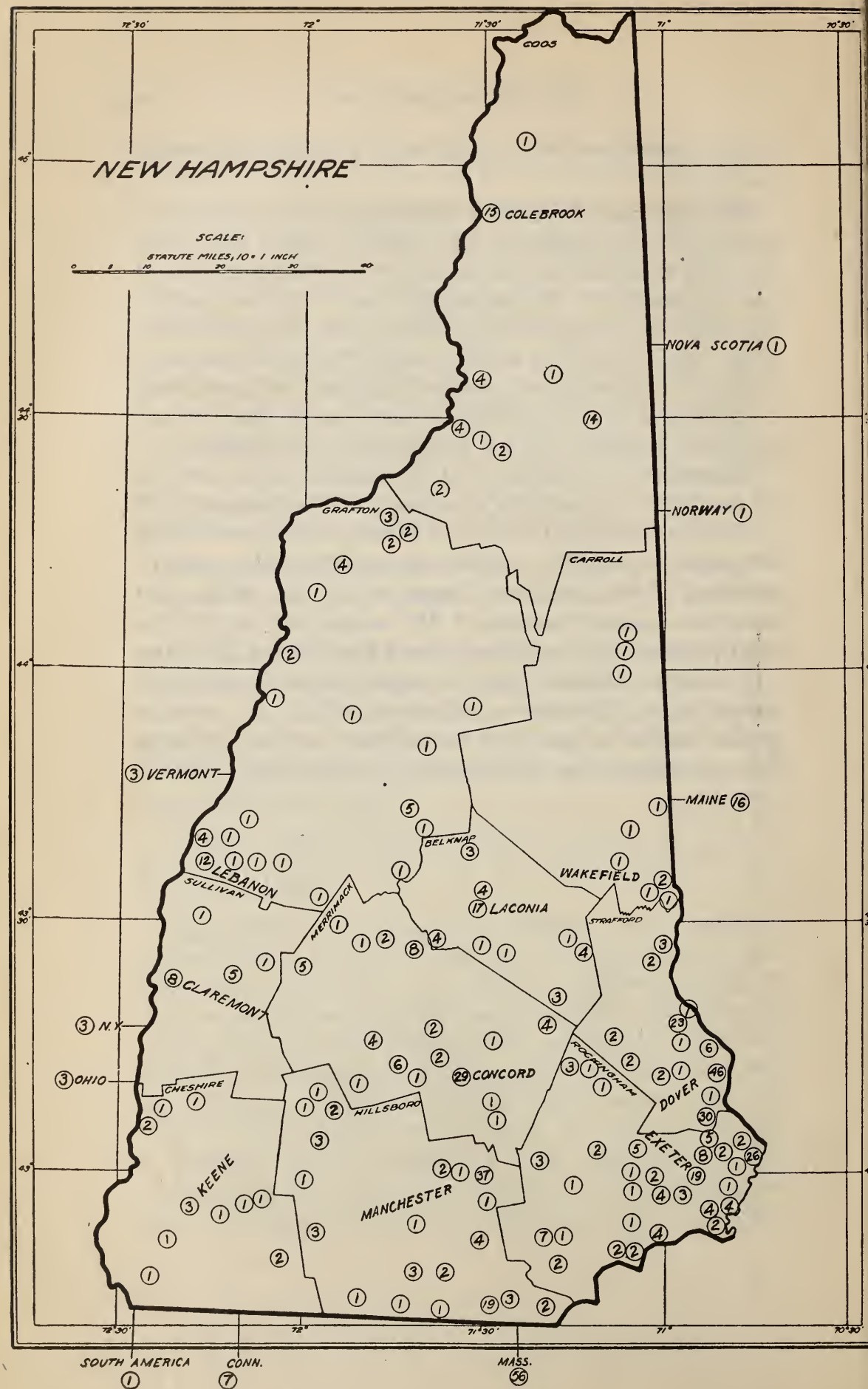
Warnings and Reports of Standing.—New students are notified by the registrar of all studies in which their work has been unsatisfactory, at the end of the first five weeks of the first semester. At the middle of each semester, official warnings of unsatisfactory work are sent to all students. When official warnings totaling more than seven hours are received by any student, a notice is also sent to the parents.

Reports of grades attained are sent, at the close of each semester, to students and to their parents or guardians.

Attendance.—Attendance at convocation is required of all students. Attendance at military drill is required of all men during their first two years unless excused on account of physical disability. Certificates of disability must be obtained of the physician designated by the college, and must be renewed annually. All women are required to elect physical culture unless excused for physical disability.

A student absent from the class exercise immediately preceding or following a scheduled holiday or vacation period shall be subject to a fine of $5.00, unless permission for the absence has been granted by the proper division committee.

MAP OF REGISTRATION, 1916–1917



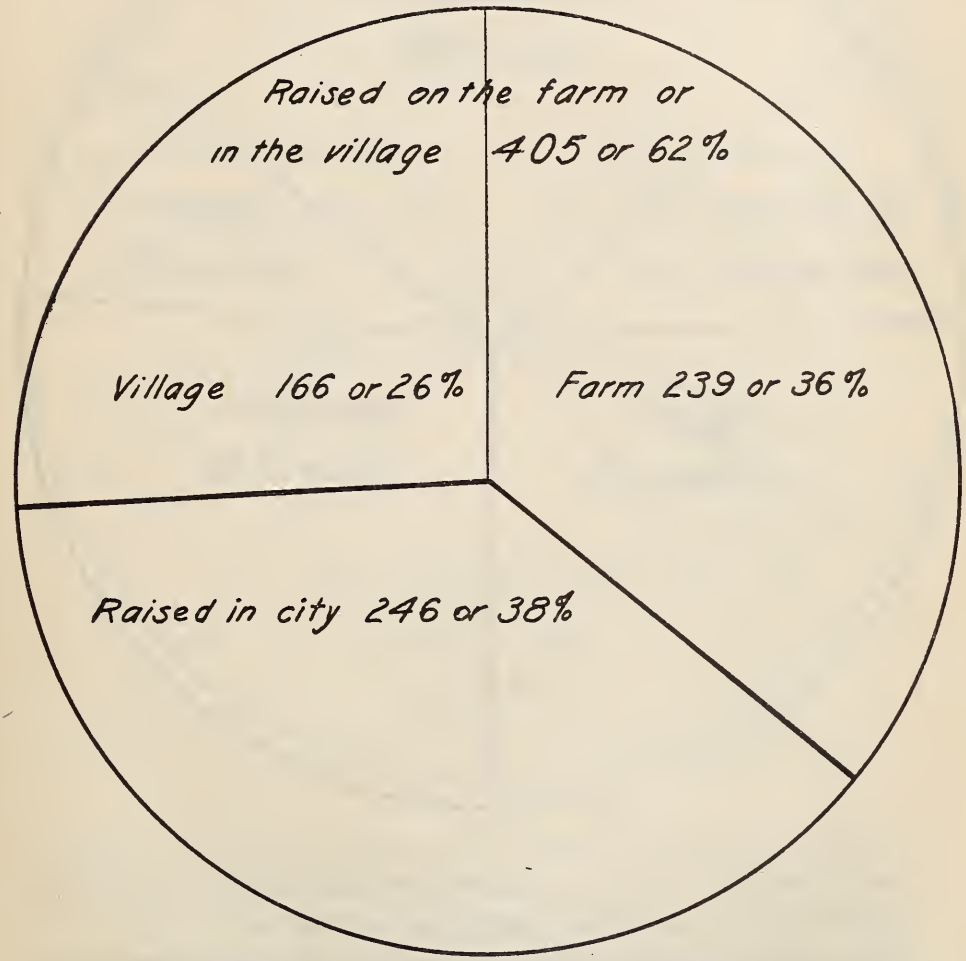
Numbers within circles represent number of students who registered in 1916–1917 from that particular locality.

NOTES ON REGISTRATION.

CONDA J. HAM, *Registrar.*

Figures Suggest; Charts Portray; Results Tell.—We give herewith the figures, and exhibit the charts, but will

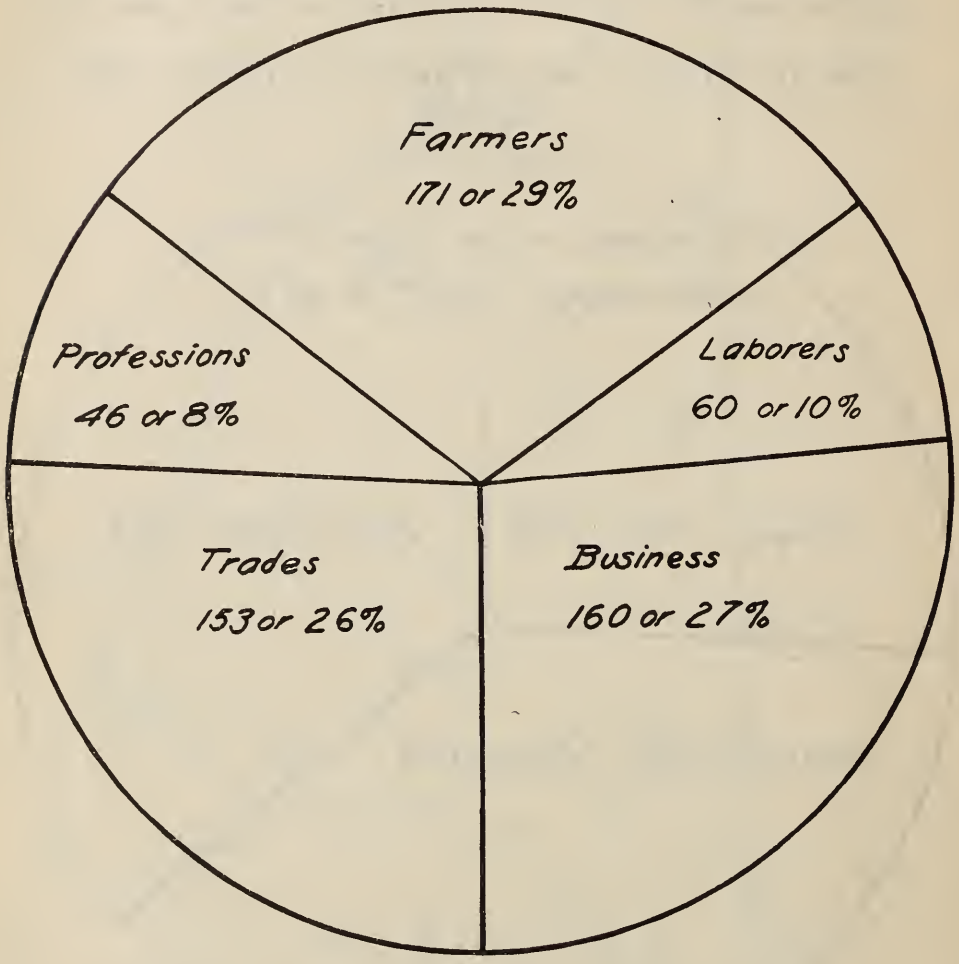
COMMUNITIES FROM WHICH STUDENTS ARE DRAWN



allow you to judge New Hampshire College by its results. Its graduates, an ever increasing number, are living in

every county of the state, and are scattered throughout the nation. Its departments are being enlarged and the courses made more valuable every year. Its agricultural experiment station and extension service are of benefit to all

OCCUPATIONS OF THE FATHERS OF OUR STUDENTS

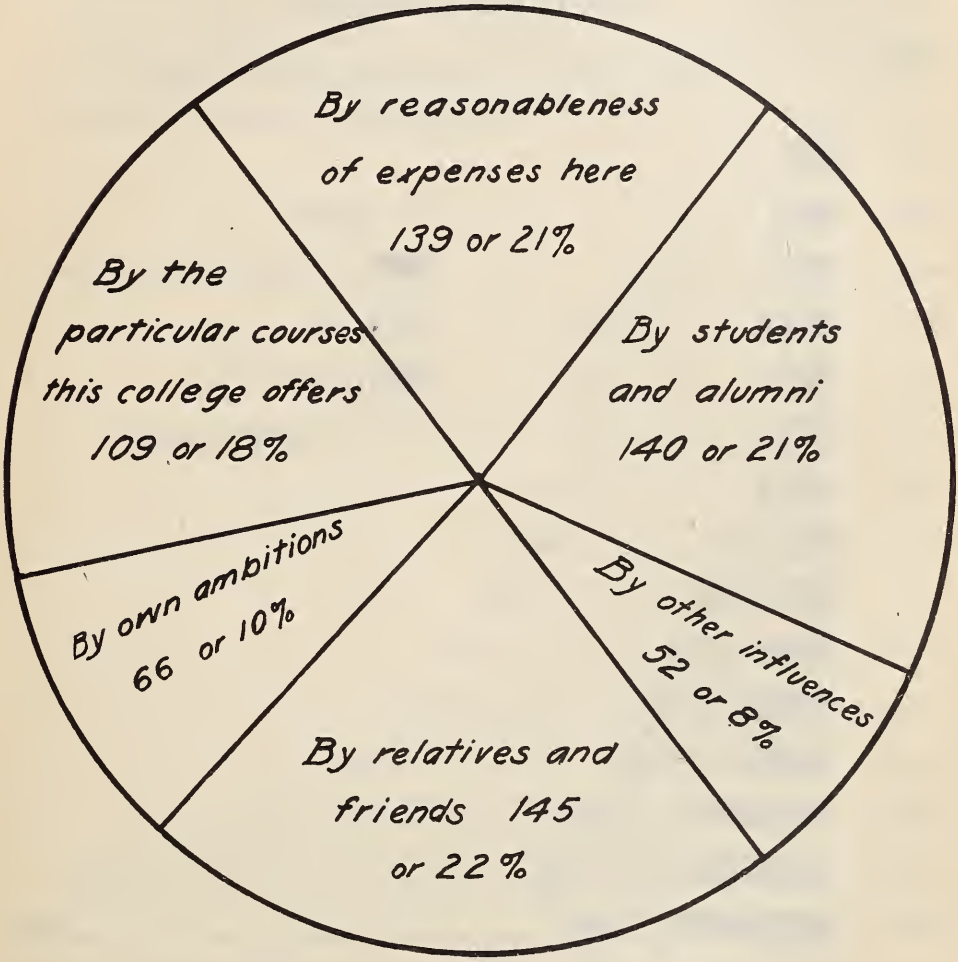


New Hampshire citizens. These are some of the results by which the value of the college may be measured.

The map of registration explains at a glance the general distribution of our students. This shows the college to be a state institution in the real sense, serving every section of

the state. Our students are mainly residents of New Hampshire, and a large number come from the farming communities and small villages. The charts on pages 21 and 22.

FACTORS WHICH INFLUENCED STUDENTS TO COME TO NEW HAMPSHIRE COLLEGE



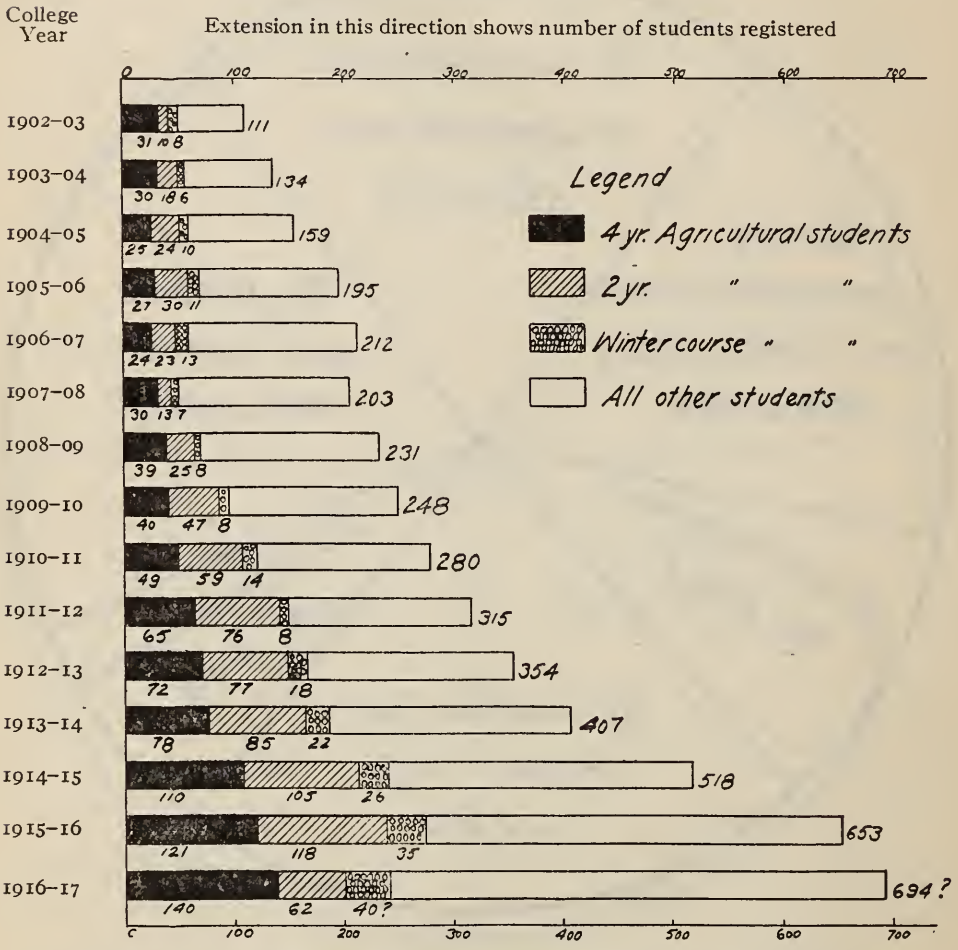
show the "Communities from which students are drawn" and the "Occupations of the fathers."

Largely through the popularity of the courses it offers, the reasonableness of expense, and the influence of its loyal students and alumni, the college itself is the chief factor of attraction, rather than the many outside causes which

might affect the student's choice of any particular institution. This is clearly shown by the chart on page 23.

The growth of the college has been continuous for the

COMPARATIVE ENROLLMENT OF AGRICULTURAL AND OTHER STUDENTS FOR A PERIOD OF FIFTEEN YEARS



? Estimated.

past fifteen years. How phenomenal the increase in numbers has been recently is shown by the chart on this page.

Bearing in mind these significant facts concerning the registration figures of the present year, the prospective

student is requested to examine well the excellent opportunities which New Hampshire College presents, before deciding what institution to attend. Its doors are open to every graduate of New Hampshire's approved preparatory schools. Its courses prepare for a wide choice of life's activities. Its aim is to guard well the student's best interests while in attendance here, and it is mindful of his welfare after graduation. To the student desiring the best in the quality of preparation, at a reasonable cost, this institution will especially appeal.

BUILDINGS AND EQUIPMENT.

BUILDINGS.

The college is housed in thirteen large buildings scattered over a handsome campus. Of these buildings, six are devoted to offices, recitation rooms or laboratories; one is the large armory and gymnasium; three are dormitories for women; one the new dormitory for men, one the library, containing the books of the college and the town of Durham, and one the home of the experiment station. Besides these there are the college barn, several smaller barns, an insectary, a poultry laboratory, poultry houses, and a range of greenhouses.

Dormitories for Women.—Smith Hall was made possible by the generosity of Mrs. Shirley Onderdonk, of Durham, who gave $16,000 as a memorial to her mother, Mrs. Alice Hamilton Smith. The remainder of the cost, $10,000, was provided by the state. The building has rooms for 32 girls, and dining accommodations for 75.

Ballard and Bickford Halls were formerly fraternity houses. They have been acquired recently by purchase and lease, remodeled, entirely refitted, and furnish accommodations for 60 girls.

Each dormitory has a large reception room for social use. A competent matron is in charge of each building.

Fairchild Hall.—One of the latest additions to the college buildings is the $60,000 dormitory for men. This building, named in honor of the late president of the college, is a handsome brick structure of colonial design, which furnishes accommodations for 106 men.

No item of necessary dormitory equipment has been forgotten. There are shower baths on each floor and some suites have private toilets. A large general assembly room has been provided for the use of the occupants of the

building. The student rooms are furnished, heated and lighted and are cared for by a competent assistant. They are arranged mainly in suites consisting of chamber and study.

Thompson Hall is the main administration building and from its eminence commands a view of the entire campus. It contains, besides recitation rooms, the offices of the president, dean, registrar, business secretary, bookstore, and headquarters of the departments of modern languages, English, education and psychology, zoölogy, economic entomology, and home economics. The gymnasium for women is also in this building.

Conant Hall is devoted exclusively to the department of chemistry. The second floor, containing lecture rooms and three laboratories, remains substantially as it has been for a number of years. The first floor has been recently fitted up with modern chemistry desks and other equipment to supply much needed additional laboratory facilities for chemical students. The building is thus well equipped for carrying on the chemical courses of the college, including those connected with chemical engineering, agriculture, and home economics.

DeMeritt Hall.—The engineering building is the most prominent of the engineering group and houses the departments of mechanical engineering, electrical engineering, physics, drawing and mathematics. It contains lecture, recitation, drawing, and office rooms for the several departments; also numerous electrical, mechanical and physical laboratories, each one adapted to and equipped for its specific work.

The Library.—In accordance with an act of consolidation between the libraries of Durham and the college, the books of the Durham public library and the college are all shelved in one building, forming the Hamilton Smith Public Library. This consolidation makes an especially good collection, the scientific books of the college

supplementing well the more popular books of the town library. The consolidated libraries number about 33,000 volumes and the reading room is supplied with 84 periodicals. The departments of sociology, of history and political science, and of economics are located in the library building.

Aside from the main library, each department has its working library of the more technical books and journals.

The library as a whole subscribes for 230 periodicals; 84 of them, non-technical in character, are kept in the periodical and children's rooms; the rest, in the various departmental libraries. Nine daily papers and 26 weekly papers are received by the library.

Morrill Hall is the headquarters of the agricultural division of the college and also has the office of the director of the experiment station and the experiment station library. In this building are the laboratories and lecture rooms of the departments of agronomy, animal husbandry, horticulture, poultry husbandry, and forestry. The building also contains a collection of farm implements and a cattle judging room. The third floor provides quarters for agricultural extension workers, a reading room for agricultural students and The Agricultural Club Room.

The Armory contains the lecture rooms and offices of the military department, the rooms of the College Club and a large drill hall and gymnasium.

The Dairy Building is well arranged and equipped for purposes of dairy instruction. It contains a commercial creamery, with sanitary milk room, separator room, churning room, and cold storage room; laboratories for instruction in milk testing, milk inspection, farm butter and cheese-making, and bacteriology; a reading and exhibition room; class room, and offices.

Nesmith Hall is occupied by the departments of chemistry and botany of the experiment station and contains the laboratories of the department of botany of the college.

The Shop Building contains a wood shop, a machine shop,

a forge shop, a foundry, the boiler house, and a general repair shop connected with the curator's department.

Locker rooms with lockers are provided for use of students taking subjects in shop work.

EQUIPMENT.

Agronomy.—For the teaching of farm equipment and machinery, this department is provided with drainage levels for laying out drains, plane tables for making farm maps, polar planimeters for measuring plotted areas, a dynamometer and several other pieces of apparatus for studying draft problems. For farm crops work it has a very complete collection of dried specimens of the different forage crops, and the more important varieties of corn, wheat and oats. Seed testing apparatus, grass charts and other illustrative material form a part of the equipment.

The lecture room is equipped with a combined lantern and reflectoscope, together with a large number of lantern slides.

The soil physics laboratory contains soil bins, a compacting machine, chemical and torsion balances and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains the old original "Daniel Webster plow" and other primitive models. It also contains many of the latest types of farm machinery, including plows, cultivators, harrows, mowers, planters, corn and grain binders, a thresher, manure spreader, different kinds of cattle ties, various makes of woven wire fences, etc.

The college farm, with its 500 acres of land, has a variety of soils suited for the growth of various farm crops. Land on nearby farms is rented for the growing of corn and potatoes so that good opportunities are afforded for practical work and demonstration in the production of field crops.

Animal Husbandry.—For the various courses in animal

husbandry an extensive use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys and Holsteins. The college owns nine horses representing the draft type, and in order to become acquainted with the carriage and roadster types, the students are taken to various stock farms where these types may be inspected and judged. For the study of the different breeds of sheep, the experiment station flock is used. For the study of swine students are taken to nearby farms, since at the present the college owns no swine.

In the agricultural building a large room is fitted up for the judging of live stock, and score cards with a scale of points for each kind of animal are used.

The class room is provided with a stereopticon lantern and a large collection of lantern slides is used to show the leading individuals of the different breeds of live stock. The herd books of the most prominent breeds are used for the purpose of familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

Botany.—The department of botany has the usual laboratory equipment to meet the needs of the courses in general botany, plant physiology and bacteriology. In the advanced courses, owing to the connection of the department with the experiment station, students will find both the laboratory and greenhouse equipment ample for critical studies on plant diseases and plant nutrition.

Chemistry.—The several chemical laboratories are fairly well equipped. Each is supplied with most of the forms of apparatus required for its particular work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern and other lecture appliances.

Dairying.—The dairy department, with its new dairy building, offers excellent opportunities for instruction in

technical and practical dairy work. The college creamery is well equipped with up-to-date machinery, each machine being run by a separate electric motor.

In addition to the product of the college herd, milk and cream are received from over forty farms in Durham and vicinity. By this arrangement sufficient material is furnished for practical work. The farm dairy room is equipped with the leading makes of hand separators, and hand and small power churns suitable for private dairies. The milk testing and milk inspection laboratory is equipped with Babcock testers, sediment testers, acidimeters and other apparatus necessary for the testing and inspection of milk and cream. The bacteriological laboratory has the equipment necessary for work in dairy bacteriology.

Drawing.—The department of drawing is well equipped to meet the needs of the subjects offered. The drafting rooms are supplied with tables and lockers and the free-hand drawing studio with suitable stands and easels. For engineering and machine drawing there is an excellent collection of working models and machine parts, and various machines in other departments are available for this work. For free-hand drawing there is a good supply of geometric models, and for advanced work in charcoal drawing the nucleus of a good collection of plaster casts exists, consisting of historic ornament, details of plant and animal life and of the human form. For special work in this subject there is available the museum of casts, consisting of examples of antique and modern sculpture.

Electrical Engineering.—The laboratory for electrical engineering occupies the ground floor of the south end of the new engineering building. It has a total area of about 4,500 square feet. There is one room 104 by 36 feet for dynamo electric machinery. In this main dynamo room there is a large new distributing switchboard, on which are mounted instruments, switches, circuit breakers, ground detectors, synchronizers and plugging devices so arranged that it is possible to connect the various rooms and convey

thereto direct current and single, two-phase and three-phase alternating current of different voltages and frequencies.

In addition to this main dynamo room there is a room used for photometry, one for storage battery and one for high potential experiments. The laboratory also includes an instrument room, a mechanician's room and a dark room.

The general equipment of the laboratory includes various dynamos and motors for both direct and alternating currents, several transformers, the necessary measuring instruments and storage batteries, adapted to the needs of students taking this course.

During the current year the department has received as a gift from the Sears, Roebuck & Company of Chicago, Ill., one electric light plant consisting of engine, dynamo, switchboard, and storage battery. The department has also received as a gift from the Domestic Engineering Company, one of the Delco-light sets including engine, dynamo, switchboard and storage battery. Both of these plants are of the 32-volt type adapted for isolated plant work. These plants are available for demonstration, also for laboratory experiments.

In addition to the regular laboratory equipment, there is available for testing purposes a fully equipped sub-station having a capacity of 75,000 watts supplied by the Rockingham County Light and Power Company, of Portsmouth, N. H. A part of this equipment consists of an automatic induction feeder regulator, including contact making voltmeter and reversing switch.

Farm Department.—New Hampshire College has a large, well-equipped farm. This farm serves as a laboratory for much of the instruction in agriculture where approved methods and practices may be seen and where the students may gain experience by actually performing the work with their own hands.

The college farm proper consists of about 385 acres of which about 100 are in forest and woodland; about 45 are occupied by the campus and athletic field; about 95 are tillage land, and about 145 are pasture land. A part of

both the pasture and tillage land is utilized by the agronomy, horticulture, and animal husbandry departments of the experiment station. Small tracts of suitable land on adjoining farms are also rented for experimental purposes.

A new farm of 120 acres adjacent to one corner of the college farm and having a complete set of buildings, has just been purchased primarily for the Department of Horticulture. This farm contains one of the best orchard sites in this part of the state, also about 20 acres of forest and about 50 acres of pasture.

The farm buildings consist of a large dairy barn, a horse barn 36 x 68 with basement and hay storage loft, two sheep barns, and two general storage barns. The dairy barn has two 125-ton silos, storage capacity for about 120 tons of hay, and a well-appointed, sanitary stable accommodating 40 cows and the usual complement of calves and yearlings. A building 16 x 18 with individual yards has been erected for housing the herd bulls.

Forestry.—The demand for instruction in forestry at the college has been increasing from year to year and the legislature of 1911 provided for a separate department of forestry. The course is intended to provide not only a special training in forestry, but a broad general training in other lines of agriculture closely related to it. For those who desire to make forestry their life work, every encouragement and assistance will be given. Additional work at some graduate school of forestry is now almost a necessity, owing to the large number of men entering the profession today.

Durham is well situated with reference to the study of woodlot forestry. All types of native second-growth forests are found nearby and the college owns a tract of 60 acres of old-growth timber where exceptional opportunities are given for the study of mature forests. There are other areas where practice will be given in establishing plantations of forest trees by various methods. A nursery for the growing of seedling forest trees has been established.

All the necessary instruments for making forest maps and measurements, together with collections of wood specimens, lantern slides and photographs, are available in connection with this work.

Home Economics.—The home economics department is located in two large rooms in Thompson Hall. The food laboratory is fitted with work desks, storage cupboards and apparatus for cooking. The desks are built in cabinet form to hold the necessary utensils and materials for each student. Each table is fitted with both gas and electric stoves and ovens.

The cooking utensils are of the materials best suited to the use of each. Standard measuring apparatus and scales are provided.

A storage cabinet is provided with bins for supplies and cupboard space for large utensils.

The sewing equipment consists of sewing machines, cabinets, tables, and dress-forms.

Various educational exhibits, both food and textile, are owned and used by the department for illustrative purposes.

The reference library of books, bulletins and journals is deposited partly in this room and partly in the main library.

Mechanical Engineering Department.—The main office of the Mechanical Engineering department is located on the second floor of DeMeritt Hall. On this floor is the drafting room equipped with twenty-four drafting tables, where the advanced work in drawing and design is given. In addition there are two lecture rooms with a seating capacity for twenty-five students, one of the lecture rooms being equipped with a stereopticon lantern and screen so that illustrated lectures may be given in various subjects.

In the basement of the building is located a Mechanical Engineering laboratory, the north end of which is given over to a stock and instrument room and a materials testing room. This latter room contains a 50,000-pound Riehle tension testing machine, a machine for transverse testing materials, a Fairbanks cement testing machine, a chemical

balance and instruments for making analytical tests of fuel, oil, and gas.

The main room is given over to steam, gas, and hydraulic testing. The present equipment consists of a 12-horse power 4-cycle gasolene engine, a 5-horse power 2-cycle gasolene engine, 2 5-horse power 4-cycle gasolene engines, Westinghouse air compressors, condenser and pumps, a Westinghouse single acting steam engine, a 10-horse power high-speed steam engine, a wier tank, platform scales and tanks for weighing of water, four motor meters for comparison and testing, a rotary pump of 100 gallons per minute capacity, steam drums for testing gages, indicator springs, thermometers, and calorimeters. This equipment will be added to from time to time. In addition to this equipment there is a supply of steam engine indicators, gas engine indicators, gages and thermometers, pyrometers and other small apparatus.

Military Department.—This department is in charge of an officer of the United States regular army, detailed by the War Department, as a professor of military science and tactics. Military instruction, which is required by law, is both theoretical and practical, the former having special reference to the duties of the line.

The organization is a regiment of two battalions of three companies each, having a band, and officered by cadets selected for character, soldierly bearing, and efficiency. The federal government has furnished U. S. magazine rifles, model 1898, and equipment, to be changed this year to 1903 model rifle and equipment. Attention is paid to rifle practice, the government supplying ample ammunition and target materials, and the college a range within four minutes' walk of the college buildings, with firing points at 200 and 300 yards. The rolling country in the vicinity of the college furnishes opportunities for extended order drill and field exercises, the athletic field for close order drills, and the gymnasium gives room for indoor work.

The cadets wear, when on duty of a military character,

an olive drab cloth uniform as prescribed by standing orders of the War Department, furnished by the government to students in four-year courses. The cost of the uniform to other students cannot be estimated at present on account of the frequent changes in price of supplies of this character at the present time. In the past it has been about twenty dollars.

Service in this department for juniors and seniors is limited to those men who are selected for further training by the President of the College and the Professor of Military Science and Tactics. Those so selected who agree to continue in the department for the remainder of their college course, and to pursue the subject in camp training prescribed by the War Department, receive from the government pay at the rate of the allowance for commutation of rations for the regular service.

Upon graduation of each class the names of those students who have shown special aptitude for military service are reported to the adjutant-general of the army, and to the adjutant-general of the state, and they receive a special certificate for military proficiency.

Physics.—Besides the necessary furniture the department is supplied with the usual small tools, calipers, scales, balances, weights, hydrometers, calorimeters, thermometers, etc., and with other apparatus for the performance in the laboratory of experiments in mechanics, heat, sound, light, magnetism and electricity.

The lecture room has a small but growing collection of apparatus for the illustration, both experimentally and with the projection lantern, of the laws of matter and energy in their various relations, and of the history of physics.

Instruction is carried on by means of lectures, with stencil outlines furnished to students and constantly kept up to the development of the subjects; recitations and discussions based on standard text-books, and experimental work in the laboratory. Stencil outlines are furnished for the laboratory experiments, with concise directions

and references; and reports are written by the students on the results of their experiments, for examination and criticism by the teacher.

The physics department occupies most of the west end of the new engineering building. In the basement there are a large laboratory room for work in subjects yet to be developed, two small rooms for individual work, a switchboard room, a room for storage battery and for chemical work, and a storage room. On the first floor are the general laboratory, partly divided off into small rooms for work in light or for balances, a room for apparatus storage, the office and a recitation room. On the second floor are the lecture room and a room for the storage of lecture apparatus. The lecture room will seat about one hundred.

Poultry Husbandry.—The demand for poultry has been increasing from year to year. The work of the department was made possible by an act of the legislature in 1913.

The funds thus appropriated have been used toward the building of a poultry plant.

The buildings consist of a permanent long house and several colony houses. These furnish capacity for about 500 birds.

Four breeds of poultry are kept, namely, Barred Plymouth Rocks, Rhode Island Reds, White Leghorns, and Light Brahmas.

Students are given work in incubation, house construction, judging, killing and dressing.

Shopwork.—The wood shop is equipped with thirty-three benches and complete sets of tools for 160 students. Each bench is equipped with modern vises. Other equipment consists of a universal pattern maker's saw, board-planer, buzz-planer, band saw, speed-lathes and a large pattern maker's lathe with boring attachment.

The equipment of the machine shop consists of engine lathes, speed-lathe, vertical drill, planer, large universal milling machine, plain milling machine, shaper, power hack saw, tool grinder, twelve benches with vises and bench

lathes; and a large number of small tools, including micrometers, calipers and gages necessary for accurate work.

In the forge shop are seventeen Sturtevant down-draft forges with anvils and necessary tools. The blasts to the forges is furnished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a small steam-engine.

All the shops are operated by 550-volt three-phase induction motors, suitably connected to line shafting and driving the tools by the "group plan."

Zoölogy.—This institution is favorably situated geographically for the study of zoölogy. Within a few minutes' walk of the laboratory, the Oyster river meets the tide water from Great Bay. This furnishes a gradation of salt, brackish and fresh water with an abundance of their characteristic fauna. Great Bay, the Piscataqua river and the open ocean are within easy access, and have their own peculiar, characteristic forms. On the other hand there are numerous bodies of fresh water, with typical fresh water forms.

The department of zoölogy is prepared to offer courses along the following lines: (A) systematic zoölogy; (B) physiology and sanitation; (C) philosophical zoölogy; (D) anatomical zoölogy.

The equipment for the work in systematic zoölogy consists of a well-lighted laboratory, provided with tables, charts, dissecting and compound microscopes. All of the latest books and periodicals on systematic zoölogy are at the student's disposal. The lecture room is fitted with a new reflectoscope capable of projecting opaque objects, text-book figures or lantern slides. The room has a seating capacity of eighty, and is provided with tablet armed chairs which enable the students to readily take down notes and drawing. There is a fairly complete collection of local invertebrates, and a very good collection of the birds of New Hampshire. The work in systematic entomology is greatly aided by a large and complete collection of insects which is the property of the experiment station.

The proximity to both salt and fresh water renders the work in advanced systematic zoölogy unusually attractive. In addition to the regular collecting equipment, nets, aquaria, etc., advanced students also have the use of row-boats and a gasolene launch.

In the work in physiology, hygiene and sanitation, the department is provided with an unusually fine collection of injected preparations of the human body, and with numerous charts. The same laboratory and equipment is used in this work as noted above.

For work in evolution and experimental zoölogy the department has a very complete library. Studies in ecology in Great Bay and vicinity are encouraged, for which purpose the students have the use of a camera equipment. In addition to the study of evolution under natural conditions the department also furnishes aquaria for laboratory study and experiments.

The work in anatomical zoölogy is greatly facilitated by an abundance of fresh material which may be collected as needed. For the study of human and comparative anatomy a full set of skeletons and preserved material is provided. Students interested in histology have access to a private collection of some two thousand microscope slides.

Museum.—The museum had for a nucleus the collection made during the state geological survey. To this additions have been made from various sources. Specimens are being collected to illustrate the zoölogy of New Hampshire, and New Hampshire collectors and naturalists are invited to make the museum the permanent depository of their collections.

FOUR-YEAR COURSES.

AGRICULTURAL DIVISION.

The courses of this division are designed for the general education and scientific training of students in the various economic branches of agriculture. The lecture and recitation work of the classroom is supplemented largely by practical exercises in the laboratories. Seminar studies are also given, especially for seniors and advanced students. During junior and senior years the student has elective options in certain courses of study which enable him to specialize in animal husbandry and dairying, horticulture, forestry or general agriculture.

While the two-year course is intended to give the student as thorough training in the science and practical details of farm operations as the time will allow, it does not give the opportunity for a broad general foundation of pure and applied science that the four-year courses afford; the latter courses aim primarily to combine a college education with that of a technical vocation. Many of the graduates of the four-year courses return to the farm for the purpose of putting into practice the knowledge and training of their college work, and many of them are becoming successful and prosperous citizens of the community; others who have no farms of their own accept salaried positions as superintendents or foremen on the dairy, fruit or truck farms of large owners; still others take positions as teachers of science and agriculture in our secondary and high schools or as assistants in our agricultural colleges and experiment stations.

The Agricultural Division offers the following four-year courses of study:

Animal Husbandry and Dairy Course.—This course is designed for those students who wish to specialize either

in animal husbandry or dairying. Election of subjects between these two departments may be made throughout the junior and senior years. The dairy building with its new and complete equipment, together with the additional subjects and increased facilities for instruction in the animal husbandry department, make this course especially attractive.

Forestry Course.—The forestry course offers to students who have entered the agricultural division an opportunity to specialize in forestry during the junior and senior years. This arrangement allows the student to devote a large amount of time to the various branches of forestry, but at the same time requires a foundation of agriculture and the subjects upon which agriculture depends. The forestry department is located on the second floor of Morrill Hall. The college forest of sixty acres of old-growth pine and hemlock, and other areas of natural and planted growth, furnish the laboratory for the forestry student. Ample opportunity is given to study the various forest problems on the ground as well as in the classroom.

Horticultural Course.—This is the course for those students who contemplate making a speciality of some line of horticultural work. Several advanced subjects in botany will be required, while during the senior year opportunity will be given to elect subjects in other departments. The horticultural department is well equipped with gardens, orchards, greenhouses and laboratories for the study of the different phases of this industry, especially fruit growing, which is so prominent in the agriculture of the state.

General Agriculture or Teaching Course.—This course is intended for students who desire to secure a general training in the science of agriculture without specializing along some particular line. Provision is made during both the junior and senior years for the student to elect one or more subjects in whatever department he wishes.

The rapidly increasing demand for teachers in agriculture in our secondary schools has indicated the necessity of training men especially for this important line of work.

Eight hours of work in the department of education are required during the junior year and five hours during the senior year of all students in the General or Teaching Course in Agriculture.

ARTS AND SCIENCE DIVISION.

In the Arts and Science Division the following courses are offered:

General Arts and Science Course.—This course provides a general college training which especially prepares for secondary school teaching, business or graduate study. By means of the group system of elective studies an opportunity is given the student to specialize in zoölogy, botany, chemistry, physics, drawing, agriculture, mathematics, modern languages, English, psychology, sociology, political science, economics, history, home economics, and education.

Home Economics Course.—The course in home economics furnishes instruction in the branches that especially serve the need of women students. The work is planned to meet the demands of the day for scientific training in home making, to fit students to enter fields of professional activity in educational and institutional lines of work, and to provide thorough training for those students who wish to elect home economics as either a major or a minor subject in the Arts and Science Course.

The technical work in household science is based upon the principles of physical, biological and social sciences. The subjects in foods, nutrition and dietetics require physics, chemistry and physiology; those in sanitation necessitate a knowledge of chemistry and bacteriology; home administration and the care and education of children, a knowledge of the principles of human nutrition and dietetics, principles of economics, psychology and sociology. The training in drawing, color, and design which is gained in the department of drawing is related to the work in costume design and house decoration.

By the arrangement of studies, electives have been pro-

vided for in each year. The student is permitted three elective hours of work in the freshman year, five in the first half and six in the second half of the sophomore year, while more than half the total requirements for junior and senior years are electives. This large amount of elective work affords ample opportunity for the study of modern languages, history, mathematics, social and political sciences, or subjects of interest to women in other departments of the college. Provision is made for original problems in the senior year for students who are prepared for such studies.

Mechanic Arts Course for Teachers.—This course provides an opportunity for preparation for the teaching of Mechanic Arts and manual courses in secondary schools and institutions. It originated to meet the increasing demand for graduates of the college qualified to teach manual and mechanic arts courses. Although much of the work of this course is necessarily prescribed in such subjects as drawing, mathematics, shop work, English, psychology and education, a reasonable opportunity is given the student to elect other subjects in the Arts and Science Division. At the present time the demand for graduates from this course for secondary teaching is greater than the college can satisfy.

ENGINEERING DIVISION.

Chemical Engineering Course.—This course is intended to fit for the career of professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations and a large amount of carefully supervised laboratory work. The laboratory study is largely an individual one and the work of each student is conducted with reference, not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French to enable him to read with ease the chemical literature; a

thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work, both mechanical and electrical; and a thorough undergraduate training in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference works and chemical periodicals which the library contains.

Electrical Engineering Course.—The electrical engineering course is intended to meet the demands of young men fitting themselves for practical and professional engineering in connection with the various applications of electricity.

By means of lectures, recitations and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to not only emphasize the present needs of the practitioner and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances and the methods of designing, building and operating them.

The rapid progress in recent years in applying electricity to commercial uses renders it difficult, if not impossible, for one without a technical education to gain prominence in the work and be intrusted with its more responsible positions.

Mechanical Engineering Course.—The mechanical engineering course is intended to train young men for positions of responsibility in the field of the mechanical industries. The studies in the course are scientific, including mathematics, physics and chemistry; technical, including drawing, shop work, thermodynamics, hydraulics, machine design, electrical engineering, power engineering, and cultural studies, calculated to enable the technical man to take his proper place in the world of men.

Instruction is given by means of text-book work and laboratory work whenever possible. When necessary this work is supplemented by illustrated lectures and assigned reading. Throughout the course the theoretical work is supplemented by actual practice in mechanical operation and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical and physical laboratories.

POST-GRADUATE AND SPECIAL COURSES.

The college offers opportunity for post-graduate study in agriculture, biology and chemistry, and on the completion of satisfactory work advanced degrees will be given. Persons of mature years presenting satisfactory evidence of their ability to complete any desired course of study may be admitted as special students by vote of the faculty.

METHODS OF ADMISSION.

New Hampshire College will admit without examination all candidates for admission who are graduates of high schools or academies of New Hampshire that are approved by the State Department of Public Instruction, provided the division entrance requirements of the college be met.

Graduates of schools specially approved by the college, will be admitted on the same terms as graduates of approved schools in New Hampshire.

Graduates of other high schools and academies will be admitted on passing examinations in fifteen units. However, the college can not agree to give examinations in certain vocational subjects involving mainly practical work, but may require special certification in such subjects.

Cases not covered by the above statements will be decided by the entrance committee of the faculty.

Candidates for advanced standing are admitted on the basis of the work completed at the institutions from which they come.

DIVISION UNIT REQUIREMENTS.

There are three divisions of New Hampshire College; the Agricultural, the Arts and Science, and the Engineering. These divisions are defined and described elsewhere in this announcement.

An entrance unit represents one study of four or five recitations a week for one year. It is assumed that two hours of manual training or laboratory work are equivalent to one hour of classroom work.

Candidates for admission to the freshman class of the various divisions of the college must show evidence, either by credentials or by examination, that they are prepared in fifteen units as indicated in the following table:—

Required Units	Agricultural Division.	Arts and Science Division.	Engineering Division.
Group A English,	3	3	3
Group B Mathematics,	2	2	3
Group C Social Science and History,	1	1	1
Group D Natural Science,	1	1	1
	7	7	8
Elective Units	8	8	7
Total for admission,	15	15	15

Elective units may be offered from groups A, B, C, D, and also from

Group E Foreign languages, ancient or modern.

Group F Vocational subjects: agriculture, commercial subjects, domestic arts, mechanic arts.

However, not more than four vocational units will be accepted.

The credentials to be rendered by principals must state the time of graduation, the subjects studied, the number of entrance units in each, the grades attained by the student, and the passing grade of the school.

The credential forms to be used will be furnished by the college on application to the registrar.

The study of algebra and plane geometry may be com-

bined as in Myers' textbook provided two units are offered for the combined work.

A candidate for admission to the Arts and Science Division who offers two units in a foreign language may substitute for the two units required in mathematics two units in either social or natural science, or one in each.

Candidates for admission to the Engineering Division may offer solid geometry for a part of the additional unit in mathematics. This is not required, but is highly advisable. Students presenting solid geometry as a part of the fifteen units required for entrance will be obliged to take an equivalent in hours for solid geometry (Mathematics 53). Students presenting solid geometry in addition to the fifteen units required for entrance may obtain credit for solid geometry (Mathematics 53), by passing a thorough examination. For the required unit in natural science, physics or chemistry is advisable.

Entrance by Examination.—Examinations will be given in subjects named in the groups A–F, in June and September at the college and in June at the following places also: Keene, Laconia, Lancaster, Manchester, West Lebanon.

Competitors for the Valentine Smith Scholarship (see page 48) must take the examinations in English, American History, Algebra through quadratics, plane geometry and either physics or chemistry. These examinations must be taken in June, and may be taken at any one of the places mentioned above.

Requests for examinations should be forwarded to the Dean of the College at least one week before the beginning of the examination period, and must state the names and addresses of the students, the places at which they will present themselves, and the examinations desired.

SCHEDULE OF EXAMINATIONS.

Tuesday, June 26, 1917.
Tuesday, September 11, 1917.

8:00 Mediaeval and Modern History	1:30 English
10:00 Elementary Algebra	3:30 Elementary Latin

Wednesday, June 27, 1917.
Wednesday, September 12, 1917.

8:00 Chemistry	1:30 Plane Geometry
10:00 Physics	3:30 Advanced Latin

Thursday, June 28, 1917.
Thursday, September 13, 1917.

8:00 English History	1:30 French
10:00 American History	3:30 Advanced Algebra

Friday, June 29, 1917.
Friday, September 14, 1917.

8:00 Ancient History	1:30 German
10:00 Solid Geometry	3:30 Botany

Examinations not scheduled may be arranged.

ENTRANCE REQUIREMENTS.

GROUP A. ENGLISH.

The examination paper in English will be based upon the principle that the way to learn to write is to read.

All candidates will therefore be required to write a series of short themes which will show an adequate knowledge and thorough appreciation of certain great English classics as literature—as "the life blood of the mind." The classics selected are as follows: Shakespeare's Merchant of Venice, Henry V, and Macbeth; one novel each by Scott, Dickens, George Eliot, Stevenson, Cooper and Hawthorne; one essay each by Macaulay, Ruskin and Lowell; the subject-matter and nature of the poetry of Wordsworth, Byron, Tennyson, Longfellow and Whittier.

As a special test in spelling, grammar, punctuation and paragraphing, the candidate will be required to write a short theme upon some subject pertaining to the home or school life of the average high school senior.

An optional question will be offered for the purpose of discovering the candidate's familiarity with the best modern periodical literature.

GROUP B. MATHEMATICS.

1. **Elementary Algebra.**—The four fundamental operations for rational algebraic expressions. Factoring, determination of highest common factor and least common multiple by factoring. Fractions, including complex fractions, and ratio and proportion. Linear and quadratic equations, both numerical and literal. Problems depending on linear and quadratic equations. Radicals, including the extraction of the square root of polynomials and of numbers. Exponents, including the fractional and negative.

2. **Advanced Algebra.**—The formula for the nth term and the sum of the terms of arithmetical and geometrical progressions, with applications. The theory and use of logarithms, without involving the use of infinite series. The binomial theorem for positive integral exponents. Complex numbers, with graphical representation of sums and differences. Determinants limited to simple cases. The elements of the theory of equations.

3. **Plane Geometry.**—The usual theorems and constructions of good textbooks, including the general properties of plane rectilineal figures; the circle and measurement of angles; similar polygons; areas; regular polygons, and the measurement of the circle. The solution of numerous original exercises including loci problems. Applications to the measurement of lines and plane surfaces.

4. **Solid Geometry.**—The usual theorems and constructions of good textbooks, including the relations of lines

and planes in space; the properties and measurement of prisms, pyramids, cylinders and cones; the sphere and the spherical triangle. The solution of numerous original exercises including loci problems. Applications to the measurement of surfaces and solids.

5. Plane Trigonometry.—The subject matter of plane trigonometry as presented in good textbooks, including the solution and use of trigonometric equations of a simple character, the use of logarithms, the solution of right and oblique triangles, and practical applications.

6. Review Mathematics.—A general mathematics review during half of senior year is recommended, especially for students preparing for college engineering courses. A certificate covering the work of not more than one unit will be accepted for entrance. No examinations will be given.

GROUP C. SOCIAL SCIENCE AND HISTORY.

This group includes history, political economy, and commercial law.

Although there are excellent textbooks in history, and adequate preparation cannot be obtained by textbook work alone. Some collateral work is necessary, whatever textbook is used, and with certain textbooks a large amount is necessary. The details of the preparatory work in history are fully stated in A History Syllabus for Secondary Schools, by the New England History Teachers' Association. Boston, D. C. Heath & Co., 1904. Details are also stated in Standard Program for the Secondary Schools of New Hampshire, Department of Public Instruction, Concord, N. H.

1. Ancient History.—This may include the earliest nations and the period to 800 A. D., or it may be limited to Grecian History and Roman History to the fall of the Western Roman Empire.

2. **Mediaeval and Modern History.**

3. **English History.**

4. **American History and Civics.**—The work may conform to the course in American constitutional history described in the Standard Program or to the course in American history developed in nearly a hundred pages of the Syllabus. It is assumed that in any case a reasonable amount of time is to be given to the study of the Constitution of the United States.

5. **Political Economy.**—(1) The study of a standard text. (2) At least six topics investigated by outside reading.

6. **Commercial Law.**—(1) Study of a standard text. (2) The study of a total of not less than thirty-six specific cases.

GROUP D. NATURAL SCIENCE.

A notebook, carefully kept and examined by the teacher, is an essential part of all laboratory work in science.

1. **Botany.**—The work in botany should consist of (1) the study of a standard text; (2) four or five exercises per week, at least one of which should be laboratory work. Either half of a year or an entire year's work will be accepted.

2. **Chemistry.**—Elementary inorganic chemistry. Should cover the commoner nonmetallic and metallic elements with their most important compounds, together with an introduction to the general theoretical principles. Calculations based upon changes of gaseous volumes and chemical equations. A year's work of four or five exercises per week, at least one of which should be laboratory work.

3. **Physics.**—The standard work in physics should consist of (1) The study of a standard text; (2) not less than forty experiments worked out in the laboratory by each student and properly recorded in a suitable notebook.

4. **Zoölogy.**—A study of the fundamental principles of animal structure and the dissection of type forms. The student should become familiar with the characteristics of the various phyla of the animal kingdom. Four or five exercises per week, at least one of which should be laboratory work. Either half of a year or an entire year's work will be accepted.

GROUP E. FOREIGN LANGUAGES.

1. **French.**—Work of the first year should include (1) careful drill in pronunciation, (2) drill upon the rudiments of grammar, (3) abundant translation of simple English prose into idiomatic French, (4) reading of from 100 to 175 pages of French prose, (5) writing French from dictation. Work of the second year should include (1) the reading of from 250 to 400 pages of easy modern prose, (2) constant practice in translating from English into French variations of the text read, (3) frequent paraphrases of the text read, (4) dictation.

2. **German.**—Work of the first year should include (1) careful drill in pronunciation, (2) drill upon the rudiments of grammar, such as the inflection of the articles, the common nouns, adjectives, pronouns, and strong and weak verbs, upon the uses of the prepositions, the modal auxiliaries, and the rules of syntax and word order, (3) writing from dictation, (4) the reading of from 75 to 100 pages of prose, (5) translation from English into German. Work of the second year should include (1) the reading of from 150 to 200 pages of prose, (2) constant practice in translating from English into German variations of the text read, (3) dictation, (4) continued drill upon the rudiments of grammar, (5) frequent paraphrases of the text read.

3. **Latin, Elementary.**—Grammar and four books of Caesar. Two years' work.

4. **Latin, Advanced.**—Virgil, six books. Cicero, six orations.

GROUP F. VOCATIONAL SUBJECTS.

1. Agriculture.

Agronomy.—A textbook or lecture and recitation subject upon the formation, classification, composition, physical properties and tillage of soils; the kinds, use, value, and function of different chemical fertilizers; the use, composition, and preservation of farm manures; the planting, cultivation, harvesting, use, and marketing of the different kinds of field crops. The textbook and lecture work should be supplemented by field and laboratory exercises. Four or five periods per week for one year.

Animal Husbandry and Dairying.—A textbook and recitation subject upon the types and breeds of horses, cattle, sheep, swine, and poultry with practical exercises in stock judging; a study of the principles of feeding, the classification of animal foods, with practice in computing and mixing rations. Also a subject upon the composition, properties, care and handling of milk, with practical exercises in testing milk, cream, and butter with the Babcock test. Four or five exercises per week for one year.

Horticulture.—A textbook or lecture and recitation subject upon the classes and varieties of fruits; the location and fertilization of orchards; the pruning, grafting, and spraying of fruit trees, with some study of fungous and insect pests. Practical exercises in picking, packing, and marketing of fruit. Also a study in vegetable growing in which each student learns the classes, varieties, uses, and adaptations of our most important vegetables. Practical gardening work in growing vegetables. Four or five exercises per week for one year.

Rural Economics and Farm Management.—A textbook, lecture and recitation subject upon the economic relations of land, labor, and capital. A detailed study of the cost of producing and marketing farm and garden crops. Also a study of the business end of farming, buying and selling methods, types of farming, systems of rotation, the keeping

of farm accounts, and the making of inventories. Four exercises per week for one year.

2. **Commercial Subjects.**—Bookkeeping, commercial arithmetic, commercial geography, stenography, and typewriting.

3. **Domestic Arts.**—Foods and cookery, dressmaking, household sanitation and mechanical appliances, household economics, household design and decoration.

4. **Mechanic Arts.**—Casting, drawing, forging, machine work, molding, pattern-making, woodwork.

REQUIREMENTS FOR DEGREES.

ADVANCED DEGREES.

Advanced degrees may be conferred upon candidates who have received the degree of B.S. from this college or any institution of like standing upon the fulfilment of the following requirements:

Degree of M.S.—The successful completion of a course of graduate study pursued in residence and approved by the faculty of the college.

The preparation of an original thesis satisfactory to the faculty of the college.

Degree of M.E.—Professional experience of at least four years.

The successful completion of a course of graduate study approved by the Engineering Division Committee.

The preparation of an original thesis satisfactory to the faculty of the college upon some subject approved by the Engineering Division Committee.

For details concerning the regulations governing the conferring of degrees address Dean C. H. Pettee.

UNDERGRADUATE DEGREES.

The college confers two undergraduate degrees: Bachelor of Science and Bachelor of Arts.

The degree of Bachelor of Science is conferred upon students graduating from the Agricultural Division, from the Engineering Division and upon students graduating from the Arts and Science Division who have elected the Home Economics Course, the Mechanic Arts Course for teachers or who have majored in group 2 of the General Arts and Science Course. The degree of Bachelor of Arts is conferred upon students graduating from the General Arts and Science Course who have majored in group 1 or 3.

Agricultural Division.

The completion of 140 semester hours; for students entering in the fall of 1917 and thereafter, 144 semester hours.

The completion of the studies required in one of the following courses:

(a) Animal Husbandry and Dairying.
(b) Forestry.
(c) Horticulture.
(d) General Agriculture or Teaching.

Students graduating from the four-year courses in agriculture must present to the dean of the division on or before the second Tuesday preceding commencement satisfactory evidence of having had practical experience in farm work, either through having lived on a farm for at least two years subsequent to the age of 12 or through having worked on a farm for at least six months subsequent to the age of 16.

Students graduating from the Forestry Course must have spent at least three months in practical forest work, which time will be counted as a part of the six months requirement.

Arts and Science Division.

(a) General Arts and Science.

1. The completion of 132 semester hours, of which a minimum of 18 shall be required each semester of the freshman year and a minimum of 16 hours each semester thereafter. For students entering in the fall of 1917, and thereafter, 136 semester hours will be required.

2. The completion of English 51 and 52.

3. The completion of the military and physical culture requirements or their equivalent.

4. The completion of major and minor requirements as follows.

The Arts and Science courses are divided into three groups:

Group I.—Languages and Literature: English, French, German, Latin, Spanish.

Group II.—Mathematics and Sciences: Mathematics, Zoölogy, Botany, Geology, Meteorology, Chemistry, Home Economics, Agricultural subjects*, Drawing, Physics.

Group III.—History, Social Science, Education and Psychology: History, Political Science, Economics, Sociology, Education, Psychology.

Group Requirements.

Each Arts and Science student shall elect at least 18 semester hours in each of the above three groups.

Major Requirements.

Each Arts and Science students shall, at the middle of his second year, select a department to be known as his major department.

In this major department, he shall complete 18 semester hours in which he shall make a grade of 70 or better.

In case of departments in which less work is offered than the amount required for the major, the shortage may be made up from such other related departments as the head of his major department may prescribe.

Minor Requirements.

Each student shall, with the approval of the head of his major department, elect for a minor 18 semester hours of subjects related to his major.

Student Advisers.

1. For Freshmen and First Semester Sophomores:

A committee of three faculty members shall be appointed by the dean of the Arts and Science Division to act as advisers for freshmen and first semester sophomores, and the elective slip of each must be approved by a member of this committee.

2. For Second Semester Sophomores, Juniors, and Seniors:

A student shall have for his adviser the head of his major department; provided, that in case a student majors in a department outside the Arts and Science Division, his

* Agricultural subjects as part of minor only.

elective slip shall also be approved by the dean of the Arts and Science Division.

(b) Home Economics.

The completion of 132 semester hours; for students entering in the fall of 1917, and thereafter, 136 semester hours.

The completion of the courses required in the Home Economics branch.

(c) Mechanic Arts for Teachers.

The completion of 140 semester hours; for students entering in the fall of 1917, and thereafter, 144 semester hours.

The completion of the courses required in the Mechanic Arts Course for Teachers.

Engineering Division.

The completion of 148 hours.

The completion of the studies in one of the following branches:

(a) Chemical Engineering.
(b) Electrical Engineering.
(c) Mechanical Engineering.

Additional Hours.

Students desiring to take additional hours, should consult their advisers. The advisers have discretion with regard to two additional hours; more than two are allowed subject only to the approval of a proper division committee.

THESES.

The preparation of a thesis upon some subject connected with the work of the division may be required of candidates for a degree by the division committee.

The subject of a thesis, together with a written approval by the head of the department concerned, must be filed with the registrar within one week of the opening of the second semester. The thesis is to be submitted to the head of the department not later than the second Tuesday preceding commencement day.

It is to be typewritten or printed upon standard thesis paper, eight and one-half by eleven inches, medium weight, and must be neatly bound in black cloth and gilt-lettered on the first cover with title, name of author, degree sought and year of graduation. This bound copy is to be filed and left with the college librarian before commencement day.

SENIOR STANDING AND DEFICIENCIES.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding commencement, and each member of the class will receive a statement of his standing from the registrar before Friday of that week.

All deficiencies must be removed by 6 p. m. of the Saturday of the same week.

COURSES OF STUDY.

(For details, see Description of Studies which follows.)

AGRICULTURAL DIVISION.

All Courses.

FRESHMAN YEAR.

First Semester.	Credit Hours	Second Semester.	Credit Hours
Agriculture, 1 Survey of	1	*Bot. 52*, Gen. Bot	3
Bot. 51, Gen. Bot	3	*Chem. 52*, Inor. Chem	3
Chem. 51, Inor. Chem	3	*Draw. 54*, Agr. Draw	2
Engl. 51, Comp	3	*Engl. 52*, Comp	3
Math. 51a, Alg. and Trig	4	*Math. 54*, Surveying	2
Mil. Art 1	2	*Mil. Art 2*	2
Zoöl. 51, Gen. Zoöl	3	*Zoöl. 52*, Sys. Zoöl	3

SOPHOMORE YEAR.

First Semester.		Second Semester.	
Agron. 51, Agr. Eng	3	**A. H. 52*, Adv. St'k Judg	2
An. Husb. 51, Breeds of Live Stock	3	*Chem. 60*, Quant. Anal	3
Chem. 59, Intro. Qual. Anal	2	*Dairy 52*, Farm Dairy	3
Ent. 1, Econ. Ent	3	*Hort. 52*, Veg. Gardening	2
For. 51, Principles of Forestry	3	*Hort. 54*, Pract. Pomology	3
Mil. Art 3	2	*Mil. Art 4*	2
Phys. 51, Mech. and Heat	2	*Phys. 52*, Mag. and Elec	2
		Poultry 2, Farm Poultry	3

Animal Husbandry and Dairy Course.

JUNIOR YEAR.

First Semester.		Second Semester.	
Agron. 53, Farm Crops	3	*Agron. 52*, Soils	3
A. H. 55, Vet. Anat, *or* *Dairy 53*, Buttermaking	3	*A. H. 54*, Feeds and Feeding	3
Bot. 55, Bacteriology	3	**A. H. 56*, Animal Diseases *or* **Dairy 58*, Cheese Making	3
Geol. 51, Elements of Geol	3	*Bot. 56*, Bacteriology	3
Shop 55, Forge Work	1	*Dairy 54*, Market Milk	3
Electives	5	*Shop 54*, Wood Work	2
		Electives	2

SENIOR YEAR.

First Semester.		Second Semester.	
Agron. 55, Farm Manag't	3	*Agron. 54*, Fertilizers	3
A. H. 57, Animal Breeding	3	*Econ. 8*, Agric. Econ	3
Econ. 1, El. Econ	3	Electives	11
Electives	8		

*Elective.

Forestry Course.

JUNIOR YEAR.

First Semester.	Credit Hours	Second Semester.	Credit Hours
Bot. 53, Plant Physiol	3	*Agron. 52*, Soils	3
Bot. 55, Bacteriology	3	*Bot. 54*, Plant Histology	3
For. 53, Dendrology	3	*For. 52*, Silviculture	3
For. 55, Silviculture	4	*For. 54*, For. Mensuration	3
Geol. 51, El. Geol.	3	*Hort. 56*, Landscape Gard'ng	3
Electives	2	Electives	3

SENIOR YEAR.

First Semester.		Second Semester.	
Bot. 57, Plant Pathology	3	*Econ. 8*, Agric. Econ.	3
Econ. 1, El. Econ.	3	*For. 56*, Forest Manag't	4
For. 57, Forest Protection	2	*For. 59*, Practice of For	3
Met. 1	2	Electives	7
Electives	8		

Horticultural Course.

JUNIOR YEAR.

First Semester.		Second Semester.	
Agron. 53, Farm Crops	3	*Agron. 52*, Soils	3
Bot. 53, Plant Phys.	3	*Hort. 56*, Landscape Gard'ng	3
Bot. 55, Bacteriology	3	*Hort. 58*, Nursery Manag't	3
Geol. 51, El. Geol.	3	*Hort. 60*, Floriculture	2
Hort. 53, Greenhouse Manag.	3	*Hort. 68*, Veg. Forcing	3
Shop 55, Forge Work	1	*Shop 54*, Wood Work	2
Electives	2	Electives	2

SENIOR YEAR.

First Semester.		Second Semester.	
Agron. 55, Farm Manag't	3	*Agron. 54*, Fertilizers	3
Bot. 57, Plant Path.	3	*Econ. 8*, Agr. Econ.	3
Econ. 1, El. Econ.	3	*Hort. 62*, Seminar	1
Hort. 55, Sys. Pomology	4	*Hort. 64*, Evol. of Plants	2
Met. 1	2	Electives	8
Electives	3		

General or Teaching Course.

JUNIOR YEAR.

First Semester.		Second Semester.	
Agron. 53, Farm Crops	3	*Agron. 52*, Soils	3
Bot. 55, Bacteriology	3	*An. H. 54*, Feeds and Feeding	3
Educ. 5, Secondary Educ.	3	*Dairy 54*, Market Milk	3
Geol. 51, El. Geol.	3	*Psych. 52*, Intro. to Psych.	3
Shop 55, Forge Work	1	*Shop 53*, Wood Work	2
Electives	5	Electives	4

SENIOR YEAR.

First Semester.		Second Semester.	
Agron. 55, Farm Manag't	3	*Agron. 54*, Fertilizers	3
Econ. 1, El. Econ.	3	*Econ. 8*, Agr. Econ.	3
Met. 1	2	*Educ. 8 or 10*, Hist. of Educ.	2
Psych. 53, Adolescent Psych.	3	*Educ. 4*, School Hygiene	2
Electives	7	*Hort. 64*, Evol. of Plants	2
		Electives	5

ARTS AND SCIENCE DIVISION.

General Arts and Science Course.

All elective except English 51 and 52, Drill and Military Science, and for women, Home Economics 1 and Physical Culture.

FRESHMAN YEAR.

First Semester.	Credit Hours	Second Semester.	Credit Hours
Chem. 51, Inor. Chem.	3	*Chem. 52*, Inor. Chem. *or* *Chem. 56*, Spec. Chem.	3
Chem. 55, Inor. Chem.	4		
Draw. 51, Eng. Draw.	2	*Draw. 52*, Mach. Draw.	3
Draw. 63, Free-Hand Draw.	2	*Draw. 64*, Free-hand Draw.	2
Draw. 67, House Planning	2	*Draw. 68*, House Structure	2
Engl. 51, Comp. and Rhet.	3	*Econ. 2*, Com. Geog.	3
Fr. 1, El. Fren.	3	*Engl. 52*, Comp. and Rhet.	3
Ger. 1, El. Germ.	3	*Engl. 54*, Intro. to Engl. Lit.	3
Hist. 1, European, 476–1492	3	*Fr. 2*, El. Fren.	3
H. E. 1, Per. Hyg.	1	*Ger. 2*, El. Germ.	3
H. E. 3, El. Sewing	1	*Hist. 2*, European, 1492–1715	3
Latin 1, Livy	3	*H. E. 2*, The House	2
Math. 51a, Alg. and Trig	4	*H. E. 4*, El. Sewing Cont.	1
Math. 51b, Trig. and Anal. Geom.	4	*Latin 2*, Horace	3
Math. 53, Sol. Geom.	2	*Math. 52*, Anal. Geom.	3
Mil. Art 1	2	*Math. 54*, Surveying	2
Phys. Cult. 1	1	*Math. 66*, Calc.	3
Span. 1, El. Span.	3	*Mil. Art 2*	2
Shop 51, Wood Work	2	*Phys. Cult. 2*	1
Zoöl. 51, Gen. Zoöl.	3	*Span. 2*, El. Span.	3
		Zoöl. 52, Gen. Zoöl.	3
		Zoöl. 58, Hum. Anat. and Physiol.	3

SOPHOMORE YEAR.

(All elective except Drill, Military Science and Physical Culture.)

First Semester.		Second Semester.	
Bot. 51, Gen. Bot.	3	*Bot. 52*, Gen. Bot.	3
Chem. 57, Spec. Org. Chem.	3	*Chem. 68*, Org. Chem.	3
Chem. 59, Intro. Qual. Anal.	2	*Draw. 64a*, Adv. Free-hand Draw.	2
Draw. 53, Descr. Geom.	3	*Draw. 70*, Color and Design	2
Draw. 63a, Adv. Free-hand Draw.	2	*Econ. 2*, Com. Geog.	3
Draw. 69, Free-hand Draw	2	*Engl. 54*, Intro. to Engl. Lit.	3
Econ. 1, El. Econ.	3	*Engl. 56*, Argum.	3
Educ. 1 or 3, Hist. of Educ.	2	*Engl. 58*, Eliz. Drama	3
Engl. 53, Adv. Comp. and Lit. Crit.	3	*Ent. 2*, Appl. Econ. Ent.	3
Engl. 63, Writing for Pub.	3	*Ent. 4*, Hsehld Insects	2
Ent. 1, Econ. Ent.	3	*Fr. 4*, Prose	3
Fr. 3, Prose	3	*Ger. 4*, Prose	3
Ger. 3, Prose	3	*Hist. 4*, European, since 1815	3
Hist. 3, European, 1715–1815	3	*H. E. 6*, Textiles	2
H. E. 7, Foods	4	*H. E. 8*, Foods	4
Math. 55, Calc.	3	*Math. 56*, Calc.	3
Math. 66, Calc.	3	*Mil. Art 4*	2
Mil. Art 3	2	*Phys. Cult. 4*	1
Phys. Cult. 3	1	*Phys. 52*, Magn. and Elec.	2

	Credit Hours
Phys. 51, Mech. and Heat	2
Phys. 53, Phys. Theo. and Prac.	6
Phys. 59, El. Optics	2
Soc. 51, Prim. Man and Soc. Origins	3
Span. 1, El. Span.	3
Span. 3, Prose	3
Zoöl. 51, Gen. Zoöl.	3
Zoöl. 53, Faunal Zoöl. (Invert.)	3
Phys. 54, Phys. Theo. and Prac.	6
Phys. 58, El. Phys. and Prac.	3
Psych. 52, Intr. to Psych.	3
Span. 2, El. Span	3
Span. 4, Prose	3
Zoöl. 52, Syst. Zoöl.	3
Zoöl. 54, Faunal Zoöl. (Vert.)	3

JUNIOR YEAR.

First Semester.

Bot. 53, Plt. Physio.	3
Bot. 55, Gen. Bact.	3
Bot. 57, Plt. Path	3
Chem. 65, Quant. Anal.	4
Dairy, 51, Dom. Dairy	3
Econ. 5, Labor Prob.	3
Econ. 9, Corp. Fin.	3
Econ. 13, Acctng.	3
Engl. 53, Adv. Comp. and Lit. Crit.	3
Engl. 55, The Engl. Novel, *or* *Engl. 57*, Mod. Engl. Poetry	3
Engl. 61, Mod. Engl. Prose	3
Engl. 63, Writing for Pub.	3
Ent. 1, Econ. Ent.	3
Ent. 3, Insects of Dom. Ani.	2
Ent. 5, Adv. Econ. Ent.	2
For. 51, Prin. of For.	3
Fr. 5 or 7, Fren. Lit. and Comp.	3
Geol. 51, El. Geol.	3
Ger. 5, Goethe, *or* *Ger. 7*, Schiller, *or* *Ger. 13*, Sudermann	3
Ger. 9 or 11, Ger. Comp. and Con.	3
Hist. 5, Am. to 1801	3
H. E. 5, H. E. in Hist.	2
H. E. 11, Prin. of Nutr.	3
H. E. 13, House Dec.	2
Math, 57, Dif. Equa. *or* *Math. 59*, Theo. of Equa.	2
Mil. Art, 5	3
Phys. Cult. 5	1
Phys. 55, Math. Phys. and Prac.	6
Pol. Sci. 3, Am. Const. Law	3
Psych. 53, Psych. of the Adoles.	3
Soc. 53, Ment. Def., *or* *Soc. 55*, Soc. Psych.	3
Span. 1, El. Span.	3
Zoöl. 59, Hyg. and San.	3
Zoöl. 61, Embr.	3
Zoöl. 65, Comp. Anat.	3
Zoöl. 67, Hist.	3

Second Semester.

Bot. 54, Plt. Hist.	2
Bot. 56, Bact.	3
Chem. 68, Org. Chem.	3
Econ. 4, Mon. and Bank. *or* *Econ. 6*, Pub. Fin. and Tax.	3
Econ. 8, Agri. Econ.	3
Econ. 14, Cost Acctng.	3
Econ. 16, Auditing	3
Educ. 4, Sch. Hyg.	2
Engl. 54, Intr. to Engl. Lit	3
Engl. 56, Arg.	3
Engl. 58, Eliz. Drama	3
Engl. 60, Am. Lit.	4
Engl. 62, Shak.'s Plays	3
Ent. 4, Hsehld. Insects	2
Ent. 6, Adv. Econ. Ent.	3
For. 52, Silv.	3
Fr. 6 or 8, Fren. Lit. and Comp.	3
Ger. 6, Goethe, *or* *Ger. 8*, Schiller, *or* *Ger. 14*, Sudermann	3
Ger. 10 or 12, Germ. Comp. and Conv.	3
Hist. 6, American, 1801–1861	3
H. E. 10, El. Dressmkg.	2
H. E. 12, Diet.	3
Math. 58, Adv. Calc., *or* *Math. 60*, Hist. of Math.	2
Mil. Art, 6	3
Min. 54	2
Phys. Cult. 6	1
Phys. 56, Math. Phys. and Prac.	6
Pol. Sci. 2, Laws of Bus.	3
Psych. 52, Intr. to Psych.	3
Soc. 52, Soc. Path. and Mod. Phil.	3
Span. 2, El. Span.	3
Zoöl. 54, Faunal Zoöl.	3
Zoöl. 60, Adv. San.	3
Zoöl. 66, Comp. Anat. of the Vert.	3

SENIOR YEAR.

First Semester.	Credit Hours	Second Semester.	Credit Hours
Bot. 53, Plt. Physiol.	3	*Astr. 2*	2
Bot. 55, Gen. Bact.	3	*Bot. 54*, Plt. Hist.	2
Bot. 57, Plt. Path.	3	*Bot. 56*, Bact.	3
Chem. 71, Organ. Chem. Lab.	3	*Chem. 76*, Phys. and Elec. Chem.	3
Dairy. 51, Dom. Dairy	3	*Econ. 4*, Mon. and Bank., *or* / *Econ. 6*, Pub. Fin. and Tax.	3
Econ. 5, Labor Prob.	3	*Econ. 8*, Agr. Econ.	3
Econ. 9, Corp. Fin.	3	*Econ. 14*, Cost Acctng.	3
Econ. 13, Acctng.	3	*Econ. 16*, Auditing	3
Econ. 15, Adv. Acctng. Prob.	3	*Educ. 6*, Ind. Educ.	2
Educ. 5, Sec. Educ.	3	*Engl. 56*, Arg.	3
Educ. 7, Prin. of Educ.	3	*Engl. 58*, Eliz. Drama	3
Educ. 9, Adm. and Super.	2	*Engl. 60*, Am. Lit.	4
Engl. 55, Engl. Novel	3	*Engl. 62*, Shak.'s Plys.	3
Engl. 57, Mod. Engl. Poetry	3	*Engl. 64*, Teach. Course	1
Engl. 59, Chaucer	3	*Ent. 2*, Appl. Econ. Ent.	3
Engl. 61, Mod. Engl. Prose	3	*Ent. 4*, Hsehld. Insects	2
Ent. 1, Econ. Ent.	3	*Fr. 6 or 8*, Fr. Lit. and Comp.	3
Ent. 3, Insects of Dom. An.	2	*Geol. 52*, Hist. Geol.	3
Ent. 5, Adv. Econ. Ent.	3	*Ger. 6*, Goethe, *or* / *Ger. 8*, Schiller, *or* / *Ger. 14*, Sudermann	3
Fr. 5 or 7, Fren. Lit. and Comp.	3	*Ger. 10, or 12*, Ger. Comp. and Con.	3
Geol. 51, El. Geol.	3	*H. E. 26*, Survey of Foods	2
Ger. 5, Goethe, *or* / *Ger. 7*, Schiller, *or* / *Ger. 13*, Sudermann	3	*Math. 58*, Adv. Calc., *or* / *Math. 60*, Hist. of Math. Sci.	2
Ger. 9 or 11, Ger. Comp. and Con.	3	*Mil. Art, 8*	3
Hist. 7, American since 1860	3	*Phys. Cult. 8*	1
H. E. 15, Dressmkg.	2	*Pol. Sci. 2*, Laws of Bus.	3
H. E. 19, Hsehld. Adm.	3	*Soc. 54*, Rural Soc.	3
Math. 57, Dif. Equa., *or* / *Math. 59*, Theo. of Equa.	2	*Soc. 56*, Intr. to Gen. Soc., *or* / *Soc. 58*, Soc. Eth.	3
Met. 1	2	*Span. 4*, Prose	3
Mil. Art, 7	3	*Thesis*	1 or 2
Phys. Cult. 7	1	*Zoöl. 56*, Orn.	3
Pol. Sci. 3, Am. Const. Law	3	*Zoöl. 62*, Adv. Neu.	3
Soc. 53, Ment. Def.	3	*Zoöl. 64*, Evol. and Gen.	3
Span. 3, Prose	2	*Zoöl. 68*, Insect Anat.	3
Thesis	2	*Zoöl. 70*, Adv. Zoöl.	3
Zoöl. 55, Syst. Ent.	3	*Zoöl. 72*, Voc. Zoöl.	3
Zoöl. 69, Adv. Zoöl.	3		
Zoöl. 71, Voc. Zoöl.	3		

Home Economics Course.

FRESHMAN YEAR.

First Semester.		Second Semester.	
Required Subjects:		Required Subjects:	
Chem. 55, Inor. Chem.	4	*Chem. 56*, Inorg. Chem.	3
Draw. 67, Houseplanning	2	*Draw. 68*, House Structure	2
Engl. 51, Comp. and Rhet.	3	*Engl. 52*, Comp. and Rhet.	3
H. E. 1, Personal Hyg.	1	*H. E. 2*, The House	2
H. E. 3, El. Clothing	1	*H. E. 4*, El. Clothing	1
Phys. Cult. 1	1	*Phys. Cult. 2*	1
Zoöl. 51, Gen. Zoöl.	3	*Zoöl. 58*, Hum. Anat. and Physiol.	3

	Credit Hours
*Elective Subjects: Total hrs.	3
Fr. 1, El. Fr.	3
Ger. 1, El. Ger.	3
Hist. 1, European 476–1492	3
Math. 51a, Alg. and Trig.	4
Math. 51b, Trig. and Anal. Geom.	4

	Credit Hours
*Elective Subjects: Total hrs.	3
Engl. 54, Intro. to Eng. Lit.	3
Fr. 2, El. French	3
Ger. 2, El. German	3
Hist. 2, European 1492–1715	3

SOPHOMORE YEAR.

First Semester.

Required Subjects:	
Chem. 57, Org. Chem.	3
Draw. 69, Freehand Draw.	2
H. E. 7, Foods and Cooking	4
Phys. Cult. 3	1
Zoöl. 59, Hyg. and Sanitation	3
*Elective Subjects: Total hrs.	3
Bot. 51, Gen. Bot.	3
Engl. 53, Adv. Comp. and Crit.	3
Fr. 3, Prose	3
Ger. 3, Prose	3
Hist. 3, European 1715–1815	3
†*Phys. 57*, Household Phys.	3

Second Semester.

Required Subjects:	
H. E. 6, Textiles	2
H. E. 8, Foods and Cooking	4
Draw. 70, Color and Design	2
Phys. Cult. 4	1
Psych. 52, Intro. to Psych.	3
Elective Subjects: Total hrs.	4
Bot. 52, Gen. Bot.	3
Engl. 56, Argumentation	3
Ent. 4, Household Insects	2
Hist. 4, European since 1815	3
Fr. 4, Prose	3
Ger. 4, Prose	3

JUNIOR YEAR.

First Semester.

Required Subjects:	
Bot. 55, Bact.	3
Econ. 1, El. Econ.	3
H. E. 11, Nutrition	3
H. E. 13, House Decor.	2
Phys. Cult. 5	1
*Elective Subjects: Total hrs.	3
Chem. 69, Household Chem.	3
Dairy 51, Domes. Dairy	3
Engl. 57, Mod. Eng. Poetry	3
Hist. 5, Am. to 1801	3
H. E. 5, H. E. in History	2
Psych. 53, Adolesc. Psych.	3

Second Semester.

Required Subjects:	
H. E. 10, El. Dressmaking	2
H. E. 12, Dietetics	3
Phys. Cult. 6	1
*Elective Subjects: Total hrs.	10
Educ. 4, School Hygiene	2
Engl. 60, Am. Lit.	4
Hist. 6, Const. and Pol. Hist. of U. S.	3
Poultry 6, Poul. for the Home	2

SENIOR YEAR.

First Semester.

Required Subjects:	
H. E. 15, Dressmaking	2
H. E. 19, Household Admin.	3
Soc. 51, Primitive Man	3
*Elective Subjects: Total hrs.	8
Educ. 5, Secondary Educ.	3
Hist. 7, Am. to 1860	3
H. E. 21, Sr. Prob. in H. E.	2
Psych. 55, Soc. Psych.	3

Second Semester.

Required Subjects:	
H. E. 22, Seminar	1
Soc. 52, Soc. Path. and Mod. Philan.	3
Zoöl. 64, Evol. and Genetics	3
*Elective Subjects: Total hrs.	9
Educ. 1, 3, or 6, Hist. of Educ.	2
H. E. 24, Teachers' study	2
Soc. 54, Rural Soc.	3

*Other subjects may be offered for the elective requirement. The student has a choice of a wide range from all departments of the college.

†Should be elected by students not offering physics for entrance.

Mechanic Arts Course for Teachers.

FRESHMAN YEAR.

First Semester.	Credit Hours	Second Semester.	Credit Hours
Chem. 51, Inor. Chem.	3	*Chem. 52*, Inor. Chem.	3
Draw. 51, Eng. Draw.	2	*Draw. 52*, Mach. Draw	3
Engl. 51, Engl. Comp. and Rhet.	3	**Econ. 2*, Com. Geog.	3
Math. 51a, Alg. and Trig., *or* *Math. 51b*, Trig. and Anal. Geom.	4	*Engl. 52*, Comp. and Rhet.	3
		**Math. 52*, Anal. Geom.	3
Math. 53, Sol. Geom.	2	*Math. 54*, Surveying	2
Mil. Art, 1	2	*Mil. Art, 2*	2
Shop 51, Wood Work	2	*Shop 52*, Wood Work	2

SOPHOMORE YEAR.

First Semester.		Second Semester.	
Chem. 59, Intro. Qual. Anal.	2	*Draw. 64*, Free-hand Draw	2
Draw. 53, Descr. Geom	3	**Engl. 56*, Arg.	3
Econ. 1, El. Econ.	3	**Ger. 2*, El. Germ.	3
**Ger. 1*, El. Germ.	3	*Mil. Art, 4*	2
Mil. Art, 3	2	*Phys. 52*, Mag. and Elec.	2
Phys. 51, Mech. and Heat.	2	*Phys. 58*, El. Phys. and Prac.	3
Shop 59, Wood Work	3	*Psych. 52*, Intr. to Psych.	3
**Zoöl. 51*, Gen. Zoöl.	3	*Shop 60*, Wood Work	3
		**Zoöl. 52*, Gen. Zoöl.	3

JUNIOR YEAR.

First Semester.		Second Semester.	
Draw. 65, Arch. Draw.	2	*Draw. 66*, Arch. Draw.	2
Educ. 5, Sec. Educ.	3	**Econ. 4*, Mon. and Bank., *or* **Econ. 6*, Pub. Fin. and Tax'n	3
Engl. 53, Adv. Comp.	3		
**Engl. 55*, Engl. Novel, *or* **Engl. 57*, Mod. Engl. Poetry	3	*Educ. 4*, Sch. Hyg.	2
		**Engl. 58*, Eliz. Drama.	3
For. 53, Dend.	3	**For. 60*, For. Util.	3
**Geol. 51*, El. Geol.	3	**Ger. 4*, Prose	3
**Ger. 3*, Prose	3	**Hist. 2*, European, 1492–1715	3
**Hist. 1*, European, 476–1492	3	**Mil. Art, 6*	3
**Mil. Art, 5*	3	**Pol. Sci. 2*, Laws of Bus.	3
Shop 65, Wood Work	2	*Shop 66*, Forge Work	3

SENIOR YEAR.

First Semester.		Second Semester.	
E. E. 9, Ind. Elec.	3	*Draw. 72*, Prac. Math.	1
**Engl. 55*, Engl. Novel, *or* *Engl. 57*, Mod. Engl. Poetry	3	**Econ. 4*, Mon. and Bank, *or* **Econ. 6*, Pub. Fin. and Tax'n	3
**Mil. Art, 7*	3	*Educ. 6*, Ind. Educ.	2
**Pol. Sci. 3*, Am. Const. Law	3	**Engl. 60*, Am. Lit.	4
Psych. 53, Adol. Psych.	3	**For. 60*, For. Util.	3
Shop 67, Shop Teach.	2	**Hist. 6*, American, 1801–1861	3
Shop 71, Mach. Work	3	*M. E. 72*, Man. Tr.	1
Soc. 51, Prim. Man and Soc. Orig.	3	**Mil. Art, 8*	3
		Shop 72, Mach. Work	3
		**Soc. 52*, Soc. Path.	3
		**Soc. 54*, Rural Soc.	3

*Elective.

ENGINEERING DIVISION.

Electrical and Mechanical Engineering Courses.

FRESHMAN YEAR.

First Semester.	Credit Hours	Second Semester.	Credit Hours
Chem. 51, Inor. Chem.	3	*Chem. 52*, Inor. Chem.	3
Draw. 51, Eng. Draw.	2	*Chem. 54*, Qual. Anal. Lab.	3
Engl. 51, Comp. and Rhet.	3	*Draw. 56*, Descr. Geom.	3
Math. 51b., Trig. and Anal. Geom	4	*Math. 52*, Anal. Geom.	3
Math. 53, Solid Geom.	2	*Math. 66*, Calculus	3
Mil. Art, 1	2	*Mil. Art, 4*	2
Shop 51	2		

SOPHOMORE YEAR.

First Semester.		Second Semester.	
Draw. 57, Mach. Draw. Lab.	3	*M. E. 74*, Kinematics of Mach.	2
Engl. 52, Comp. and Rhet.	3	*Math. 56*, Calc.	3
Math. 55, Calculus	3	*M. E. 52*, Mechanics of Eng.	3
Phys. 53, Phys. Theory and Prac.	6	*Phys. 54*, Phys. Theory and Prac.	6
Shop 57, Forging	2	*Shop 62*, Mach. Work	2
Mil. Art, 3	2	*Mil. Art, 4*	2

JUNIOR YEAR.

First Semester.		Second Semester.	
E. E. 1, Dynamo Elec. Mach.	4	*E. E. 2*, Dynamo Elec. Mach.	4
M. E. 69, Mech. of Eng.	5	**E. E. 30*, Problems	1
M. E. 59, Mech. Lab.	2	*M. E. 64*, Mach. Design	4
M. E. 63, Mater'ls of Const.	3	*M. E. 60*, Mech. Lab.	2
**M. E. 77*, Valve Gear and Boiler Design	2	*M. E. 62*, Hydraulics	3
M. E. 77a, Problems	1	*M. E. 58*, Thermodynamics	3
Shop 63, Mach. Work	2	*Shop Work 64*, Manufacturing	2
**Mil. Art, 5*	3	**Mil. Art, 6*	3

SENIOR YEAR.

First Semester.		Second Semester.	
E. E. 11, Elec. Eng. Prac.	4	*E. E. 12*, Elec. Eng. Prac.	4
E. E. 15, Elec. Lab.	3	*E. E. 14*, Elec. Rys.	2
M. E. 73, Power Plant Eng.	4	*E. E. 16*, Elec. Lab.	3
M. E. 65, Mech. Lab.	2	*E. E. 24*, Design of Elec. Mach.	2
E. E. 27, Contr. and Spec.	1	*E. E. 26*, Illum'g Eng.	2
**E. E. 3*, Tel's, and Tel's	1	*Math. 64*, Surveying	3
**Econ. 13*, Accounting	3	**Engl. 56*, Arg.	3
Econ. 1, El. Econ.	3	**Math. 58*, Adv. Calc. *or* / **Math. 60*, Hist. of Math. Sci.	2
**Pol. Sci. 3*, Amer. Const. Law	3	**Psych. 52*, Intro. of Psych.	3
**Math. 57*, Differential Equations, *or* / **Math. 59*, Theory of Equations	2	**Soc. 52*, Social Pathology	3
**Mil. Art, 7*	3	**Econ. 4*, Money and Bank'g *or* / **Econ. 6*, Pub. Fin. and Tax'n.	3
		**Econ. 14*, Cost Accounting	3
		**Econ. 2*, Geog. of Commerce	3
		**Pol. Sci. 2*, Laws of Bus.	3
		**Mil. Art, 8*	3

*Elective.

Mechanical Engineering Course.

SENIOR YEAR.

First Semester.	Credit Hours	Second Semester.	Credit Hours
Econ. 1, El. Econ	3	**Econ. 2*, Com. Geog	3
**Econ. 13*, Acctng	3	**Econ. 4*, Mon. and Bank	3
**E. E. 3*, Tel. and Tel	1	**Econ. 6*, Pub. Fin. and Tax'n	3
E. E. 27, Contr. and Spec	1	**Econ. 14*, Cost Acctng	3
**Math. 57*, Dif. Equa	2	*E. E. 12*, E. E. Prac	4
**Math. 59*, Theo. of Equa	2	**Engl. 56*, Arg	3
M. E. 73, Power Plt. Eng	4	**H. E. 26*, Survey in foods	2
M. E. 65, Mech. Lab	2	**Math. 58*, Adv. Calc., *or* / **Math. 60*, Hist. of Math. Sci.	2
M. E. 79, Htng. and Vent	4	*Math. 64*, Surveying	3
**Mil. Art, 7*	3	*M. E. 66*, Mech. Lab	3
**Pol. Sci. 3*, Am. Const. Law	3	*M. E. 68*, Design	3
Shop 69, Wood Work	2	*M. E. 78*, Ind. Eng	3
		**Mil. Art, 8*	3
		**Pol. Sci. 2*, Laws of Bus	3
		**Psych. 52*, Intr. to Psych	3
		**Soc. 52*, Soc. Path	3

Chemical Engineering Course.

FRESHMAN YEAR.

First Semester.		Second Semester.	
Chem. 51, Inor. Chem	3	*Chem. 52*, Inor. Chem	3
Draw. 51, Eng. Draw	2	*Chem. 54*, Qual. Anal	3
Engl. 51, Comp. and Rhet	3	*Fr. 2*, El. Fren., *or* / *Ger. 2*, El. Germ.	3
Fr. 1, El. Fren., *or* / *Ger. 1*, El. Germ.	3	*Math. 52*, Anal. Geom	3
Math. 51b, Trig. and Anal. Geom	4	*Math. 66*, Calc	3
Mil. Art 1	2	*Mil. Art 2*	2
Shop 51a, Wood Work	1		

SOPHOMORE YEAR.

First Semester.		Second Semester.	
Chem. 61, Qual. Anal	1½	*Chem. 66*, Quant. Anal	5
Chem. 63, Inor. Prep	¾	*Chem. 68a*, Org. Chem	3
Chem. 65, Quant. Anal	4	*Min. 54*, Min	2
Chem. 67a, Org. Chem	2	*Ger. 16*, Prose	3
Engl. 52	3	*Math. 56*, Calc	3
Ger. 3, Prose	3	*Mil. Art 4*	2
Math. 55, Calc	3		
Mil. Art, 3	2		

JUNIOR YEAR.

First Semester.		Second Semester.	
Chem. 71, Org. Chem. Lab	3	*Chem. 74*, Adv. Quant. Anal	5
Chem. 73, Adv. Quant. Anal	4	*Chem. 76*, Phys. and Elec. Chem., *or* / *Chem. 78*, Ind. Chem. / *Chem. 80*, Met.	3
Chem. 75, Phys. Chem., *or* / *Chem. 77*, Adv. Inor. Chem.	3	**Mil. Art, 6*	3
**Mil. Art 5*	3	*Phys. 56*, Math. Phys. and Prac	6
Phys. 55, Math. Phys. and Prac	6	*Shop 68*, Mach. Work	2
Electives	3	Electives	3

*Elective.

SENIOR YEAR.

First Semester.	Credit Hours	Second Semester.	Credit Hours
Chem. 75, Phys. Chem., *or* *Chem. 77*, Adv. Inorg. Chem.	3	*Chem. 76*, Phys. and Electrochem., *or* *Chem. 78*, Ind. Chem. *Chem. 80*, Met.	3
Chem. 79, Assaying	1	*Chem. 84*, Thesis	8
Chem. 83, Adv. Quant. Lab.	6	*E. E. 22*, Ind. Elec.	3
**Econ. 1*, El. Econ.	3	**Engl. 56*, Arg.	3
E. E. 21, Mat. of Const.	3	*M. E. 58*, Ther.	2
M. E. 63, Mat. of Const.	3	**Mil. Art. 8*	3
**Mil. Art 7*	3	**Soc. 52*, Soc. Path.	3

*Elective.

DESCRIPTION OF STUDIES.

Each department is given in capital letters, arranged alphabetically and followed by the professors and instructors connected with it. The number of each individual subject is followed by the name of the instructor who gives it, and the room and building in which the class will meet. Abbreviations for the buildings are as follows: C. H.—Conant Hall; D. H.—DeMeritt Hall; Lib.—Library; M. H.—Morrill Hall; N. H.—Nesmith Hall; T. H.—Thompson Hall.

Following the description of each subject will be found the prerequisites, if any, and the nature and number of the meetings of the class per week. Except in drill and physical culture, the number of hours of credit each subject will count toward graduation will be equal to the number of meetings of the class per week. The following abbreviations tell the nature of the exercise: Lec.—lecture; Rec.—recitation; each of which are one hour in length; and Lab.—laboratory, two and one-half hours long.

An elective subject will be given only when there is a sufficient number of students taking the same.

AGRICULTURE.

DEAN OF DIVISION AND HEADS OF DEPARTMENTS.

1. Survey of Agriculture. 110 M.H.

A brief history of agriculture as a business and scientific profession in this country; a general discussion and survey of the various branches of agriculture and the opportunities for work which each affords. The subject is intended primarily to assist the student in selecting his technical subjects in the later years of his college course.

1 Lec. per week. 1st S.

AGRONOMY.

PROF. TAYLOR, ASST. PROF. PRINCE, MR. YOUNG.

51. Agricultural Engineering. Prof. Taylor. 110 M.H.

Lectures and recitations upon the mapping of farms; fencing; drainage; farm sanitation; tillage and harvesting machinery; concrete construction; silos; farm motors; roads and principles of draft. Practical work in map making, laying out drains, rope splicing, comparing farm machines, etc. For Agricultural Sophomores.

2 Lec., 1. Lab. per week. 1st S.

52. Soils. Asst. Prof. Prince. 110 M.H.

Text-book and recitations upon the formation, kinds and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and experimentation with soils to show the physical effects of different conditions and texture. For Agricultural Juniors. *2 Lec., 1 Lab. per week. 2d S.*

53. Field Crops. Asst. Prof. Prince. 110 M.H.

Text-book and recitations upon the history, use, value and methods of culture of our various field crops, including hay and grass, with particular reference to New England conditions. Laboratory practice in judging the different varieties of grains and grasses. For Agricultural Juniors except in Forestry Course.

2 Lec., 1 Lab. per week. 1st S.

54. Fertilizers. Prof. Taylor. 110 M.H.

Lectures, text-book and recitations upon the principles of fertility and plant nutrition. A study of the value and use of plant food materials, including farm manures. For Agricultural Seniors except in Forestry Course.

Prerequisites—Chemistry 51 and 52. *3 Rec. per week. 2d S.*

55. Farm Management. Mr. Young. 110 M.H.

Text-book, lectures and recitations upon the development of farming as a business, types of farming, size of farms, cropping systems, live stock problems, marketing farm products, and choosing and buying a farm. Practical work will be given in laying out farms; studying survey records of individual farms to find the labor income; also anaylzing the farm business record to determine the effect of efficiency factors on the profits made. Exercises will be given in farm building arrangements, distribution of labor throughout the year, and taking survey record of the home farm. For Agricultural Seniors, except in Forestry Course.

Prerequisite—Agronomy 51. *2 Lec., 1 Lab. per week. 1st S.*

56. Special Agronomy. Prof. Taylor. 110 M.H.

Advanced work for students interested in some particular line. No class exercises. The hours and kind of work must be arranged with the department before the subject is elected. For Agricultural Seniors.

Prerequisite—All preceding subjects in Agronomy except 54.

Three credit hours. 2d S.

57. Agricultural Seminar. Prof. Taylor. 110 M.H.

Library and reference work, the preparation of bibliographies, a study of the work and history of agricultural colleges and experiment stations. Lectures upon the history of agriculture. Elective for Agricultural Seniors. *2 Lec. per week. 1st S.*

58. Farm Cost Accounting. Mr. Young. 110 M.H.

Lectures on the principles of cost accounting as applied to farming, including business forms, and certain legal aspects of farming as a business. Laboratory exercises include the study of inventories, accounts with single enterprises and set of complete cost accounts taken from actual farms.

For Agricultural Juniors. *1 Lec., 1 Lab. per week. 2d S.*

ANIMAL HUSBANDRY.

PROF. ECKMAN, MR. FAWCETT.

51. Types and Breeds of Live Stock. Mr. Fawcett. 105 M.H.

A study of the different breeds of horses, cattle, sheep, and swine in respect to their origin, history, development, characteristics, and adaptability to different conditions of climate and soil. One afternoon each week is devoted to judging the different breeds. For Agricultural Sophomores.

2 Rec., 1 Lab. per week. 1st S.

52. Stock Judging. Mr. Fawcett. 105 M.H.

The work consists of a study of the principles and practice of judging live stock and market classes and grades. Students intending to compete for the live stock judging team should elect this subject. For laboratory work trips are taken to some of the best herds in New England. Elective for Agricultural Sophomores.

Prerequisite—Animal Husbandry 51. *2 Rec. per week. 2d S.*

54. Feeds and Feeding. Mr. Fawcett. 105 M.H.

A study of the laws of nutrition, the character and composition of feed stuffs and methods of feeding different kinds of farm animals. For the purpose of familiarizing the students with the various feed stuffs, numerous samples of grains and by-products are used. Practice is given in calculating rations for various purposes. For Agricultural Juniors in Animal Husbandry and Dairying, and General Agricultural Courses. Elective for others.

Prerequisites—Chemistry 51 and 52. *2 Rec., 1 Lab. per week. 2d S.*

55. Veterinary Anatomy. Prof. Eckman. 105 M.H.

Lectures and recitations upon the form and structure of the domesticated animals. Special attention is paid to the study of the horse and cow. Skeletons, various anatomical specimens, models, charts and lantern slides are used to make the subject as practical as possible. The purposes of this subject are to show the relation between the skeleton and the form of the animal, to acquaint the student with the various important organs of the body and to serve as a foundation for the study of animal diseases. For Animal Husbandry Juniors. Elective for others. *3 Rec. per week. 1st S.*

56. Animal Diseases. Prof. Eckman. 105 M.H.

A study of the more common diseases of farm animals and methods of prevention and treatment, simple surgical operations, horse-shoeing and soundness. For Animal Husbandry Juniors. Elective for others.

Prerequisite—Animal Husbandry 55. *3 Rec. per week. 2d S.*

57. Animal Breeding. Prof. Eckman. 105 M.H.

A study of the principles and practices of breeding farm animals. Practice is given in studying and tracing out pedigrees. For Seniors in Animal Husbandry and Dairy Course.

Prerequisite—Animal Husbandry 51. *2 Rec., 1 Lab. per week. 1st S.*

58. Live Stock Management. Prof. Eckman. 105 M.H.

Lectures and recitations upon the care and management of breeding and show animals. Elective for Agricultural Seniors.

Prerequisites—Animal Husbandry 51, 54, 56, and 57.

3 Rec. per week. 2d S.

63. Animal Diseases. Prof. Eckman. 105 M.H.

A continuation of Animal Husbandry 56. Practice is given in diagnosing diseases and treating such cases as can be found in the vicinity of Durham. Elective for Agricultural Seniors.

Prerequisite—Animal Husbandry 56. *3 Rec. per week. 1st S.*

65. Live Stock Markets and Products. Mr. Fawcett. 105 M.H.

A study of the various kinds of live stock markets and of the methods and regulations applying to the transportation of live stock. Some time will be spent in a study of the large live stock centers, the stock yards, and the government inspection of animals before and after slaughter. The various cuts of meats, and butchering of animals on the farm will be discussed. References will be supplied the student for individual work. Occasional trips will be taken to slaughter houses and packing-plants. Elective for Animal Husbandry Seniors.

Prerequisite—Animal Husbandry 52. *3 Rec. per week. 1st S.*

ASTRONOMY.

PROF. PETTEE.

2. Astronomy. Prof. Pettee. 102 T.H.

A short culture subject designed to give the student a simple explanation of the many phenomena constantly exhibiting themselves in the universe and to acquaint him with the present state of astronomic science. Elective for Arts and Science Juniors and Seniors.

2 Rec. per week. 2d S.

BOTANY.

PROF. BUTLER, ASSOC. PROF. BLACK, MR. DORAN.

51. General Botany. Assoc. Prof. Black. 206 N.H.

Morphology and histology of plants. For Agricultural Freshmen. Elective for other students. Given in two sections.

1 Lec., 2 Lab. per week. 1st S.

52. General Botany. Assoc. Prof. Black. 206 N.H.
Organography and classification of plants. For Agricultural Freshmen. Electives for other students. Given in two sections.
Prerequisite—Botany 51. *1 Lec., 2 Lab. per week. 2d S.*

53. Plant Physiology. Assoc. Prof. Black. 202 N.H.
Structure and properties of the cell, absorption and movement of water; metabolism; growth and irritability. For Forestry, and Horticultural Juniors. Elective for others.
Prerequisites—Botany 51 and 52. *1 Lec., 2 Lab. per week. 1st S.*

54. Plant Histology. Mr. Doran. 206 N.H.
Technique, characterization and differentiation of plant tissues. Comparative histology. For Forestry Juniors. Elective for others.
Prerequisites—Botany 51 and 52. *3 Lab. per week. 2d S.*

55. General Bacteriology. Assoc. Prof. Black. 206 N.H.
Lectures on the morphology and physiology of the bacteria, the principal bacterial diseases, the rôle of bacteria in the arts and industries. For Agriculture and Home Economics Juniors. Elective for others.
3 Lec. per week. 1st S.

56. Bacteriology. Assoc. Prof. Black. 202 N.H.
Technique. Morphology and biology of the principal non-pathogenic and pathogenic bacteria.
Prerequisite—Botany 55. *3 Lab. per week. 2d S.*

57. Plant Pathology. Mr. Doran. 206 N.H.
Fungous Diseases of plants, their symptoms, cause and prevention. For Forestry and Horticultural Seniors. Elective for others.
Prerequisite—Botany 53. *1 Lec., 2 Lab. per week. 1st S.*

58. Mycology. Mr. Doran. 202 N.H.
Morphology and biology of the fungi. For advanced students.
Prerequisite—Botany 57. *2 Lab. per week. 2d S.*

59. Embryology. Assoc. Prof. Black. 202 N.H.
Technique. Origin and development of the embryo. For advanced students.
Prerequisite—Botany 53. *2 Lab. per week. 1st S.*

60. Advanced Botany. Prof. Butler or Assoc. Prof. Black. 202 N.H.
For advanced students. Prerequisites will depend on the nature of the subject selected for study.
Credit and hours by arrangement. 2d S.

61. Advanced Botany. Prof. Butler or Assoc. Prof. Black. 202 N.H.
For advanced students. Prerequisites will depend on the nature of the subject selected for study.
Credit and hours by arrangement. 1st S.

CHEMISTRY.

PROF. JAMES, ASSOC. PROF. PERLEY, MR. STEWART, MR. GRANT.

51. Inorganic Chemistry. { I. Prof. James. 109 C.H. / II. Assoc. Prof. Perley. 204 C.H.

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solution of chemical problems will be required. For Agricultural and Engineering Freshmen. Elective for other Freshmen.

2 Lec. and 1 Rec. per week. 1st S.

52. Inorganic Chemistry. { I. Prof. James. 109 C.H. / II. Assoc. Prof. Perley. 204 C.H.

A continuation of Chemistry 51, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Prerequisite—Chemistry 51. *2 Lec. and 1 Rec. per week. 2d S.*

54. Qualitative Analysis. Assoc. Prof. Perley, Mr. Grant. 201 C.H.

Laboratory practice, with occasional lectures and recitations. The student is expected to become proficient in the separation and detection of the common acids and bases and to keep a full set of notes. For Engineering Freshmen and elective for Arts and Science students, room permitting.

Prerequisite—Chemistry 51. *3 Lab. Periods per week. 2d S.*

55. Inorganic Chemistry. Mr. Grant. 204 C.H.

Similar to Chemistry 51. For Home Economics Freshmen.

3 Rec. 1 Lab. per week. 1st S.

56. Inorganic Chemistry. Mr. Grant. 204 C.H.

A continuation of Chemistry 55 and similar to Chemistry 52.

Prerequisite—Chemistry 55. *3 Rec. per week. 2d S.*

57. Organic Chemistry. Mr. Grant. 109 C.H.

A study of the more important organic compounds from the viewpoint of the Home Economics student. For Home Economics Sophomores.

Prerequisites—Chemistry 55 and 56. *3 Rec. per week. 1st S.*

59. Introductory Qualitative Analysis.
Assoc. Prof. Perley, Mr. Grant. 201 C.H.

Introduction to qualitative analysis specially arranged for Agricultural students. For Agricultural and Mechanic Arts Sophomores.

Prerequisite—Chemistry 51. *2 Lab. per week. 1st S.*

59a. Qualitative Analysis. Assoc. Prof. Perley, Mr. Grant. 201 C.H.

Similar to Chemistry 54. Elective for Arts and Science students.

Prerequisite—Chemistry 51. *3 Lab. per week. 1st S.*

60. Quantitative Analysis. Mr. Stewart. 201 C.H.

Introduction to quantitative analysis, consisting of the analyses of simple compounds and materials such as feeds, fertilizers, soils, water, etc. For Agricultural Sophomores.

Prerequisites—Chemistry 51, 52 and 59. 3 Lab. Periods per week. 2d S.

61. Qualitative Analysis. Assoc. Prof. Perley, Mr. Grant. 201 C.H.

Advanced work for Chemical Sophomores on insoluble substances and the rarer elements, to precede Chemistry 65.

20 Lab. exercises. 1st S.

63. Inorganic Preparations. Prof. Perley, Mr. Grant. 201 C.H.

Study of the preparation and purification of inorganic compounds, including their extraction from minerals. For Chemical Sophomores.

Prerequisites—Chemistry 51 and 52. 12 Lab. exercises. 1st S.

65. Quantitative Analysis. Mr. Stewart. 103, 205 C. H.

A preliminary study of quantitative analysis to familiarize the student with the general methods of chemical manipulation and analysis. For Chemical Sophomores. Elective for Arts and Science Sophomores, Juniors and Seniors, provided laboratory facilities permit.

Prerequisites—Mathematics 52, German 1 and 2, Chemistry 54.

4 Lab. per week. 1st S.

66. Quantitative Analysis. Mr. Stewart. 103, 205 C.H.

A continuation of Chemistry 65. For Chemical Sophomores.

5 Lab. per week. 2d S.

67. Organic Chemistry. Prof. James, 109 C.H.

Lectures and recitations. A study of the chemistry of the carbon compounds. For Chemical Sophomores. Elective for Arts and Science students.

Prerequisites—Chemistry 51 and 52. 2 Rec. per week. 1st S.

68. Organic Chemistry. Prof. James. 109 C.H.

A continuation of Chemistry 67. For Chemical Sophomores. Elective for Arts and Science students.

Prerequisite—Chemistry 67. 3 Rec. per week. 2d S.

69. Household Chemistry. Prof. James. 109 C.H.

Treats of the chemistry of foods, beverages, baking chemicals, preservatives and detergents.

For Home Economics Juniors and 1918 Seniors.

Prerequisites—Chemistry 54 and 55. 1 Lec., 2 Lab. per week. 1st S.

71. Organic Chemical Laboratory. Prof. James. 205 C.H.

Consists mainly of laboratory practice in preparing and purifying organic compounds. Lectures and recitations will be held from time to time in connection with the practice. For Chemical Juniors. Elective for Arts and Science students.

Prerequisite—Chemistry 68. *3 Lab. per week. 1st S.*

73. Advanced Quantitative Analysis. Mr. Stewart. 205–103 C.H.

This subject will be made to fit the end which each student has in view and will be largely an individual one. For those students desiring to specialize in agricultural and food chemistry the analysis made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron and steel and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, drugs, foods, urine, etc. Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short study in gas and oil analysis will also be provided. For Chemical Juniors.

Prerequisite—Chemistry 65. *4 Lab. per week. 1st S.*

74. Advanced Quantitative Analysis. Mr. Stewart. 205–103 C.H.

A continuation of Chemistry 73. For Chemical Juniors.

5 Lab. per week. 2d S.

75. Physical Chemistry. Assoc. Prof. Perley. 204 C.H.

Advanced study of chemical theory. Practical experiments will be performed with the aid of the student, in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, ionization, electrolysis, molecular and atomic volume, thermo chemistry, equilibrium, the phase rule, etc., will take up much of the time. For Chemical Juniors or Seniors. Elective for Arts and Science students.

Prerequisites—Chemistry 51 and 52. *3 Rec. per week. 1st S.*

***76. Physical and Electro Chemistry, Lectures.**

Assoc. Prof. Perley. 204 C.H.

A continuation of Chemistry 75. For Chemical Juniors or Seniors. Elective for Arts and Science students. *3 Lec. per week. 2d S.*

77. Advanced Inorganic Chemistry. Prof. James. 109 C.H.

Advanced study of the elements and their compounds. For Chemical Juniors and Seniors. Elective for Arts and Science students.

Prerequisites—Chemistry 51 and 52. *3 Rec. per week. 1st S.*

* Chemistry 78 is given in alternate years with Chemistry 76.

*78. **Industrial Chemistry.** Assoc. Prof. Perley. 204 C.H.

Lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, the processes employed in the smelting of ores, of iron, lead, copper, zinc, silver, gold, etc., and the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of products. Trips to the leading New England cities to examine important chemical manufactures will be taken as far as practicable. For Chemical Juniors or Seniors. Elective for Arts and Science students.

Prerequisites—Chemistry 51 and 52. *3 Lec. per week. 2d S.*

79. **Assaying.** Assoc. Prof. Perley. 7 C.H.

A study in the fire assay of gold and silver ores. For Chemical Seniors.

Prerequisite—Chemistry 65. *Seventeen exercises. 1st S.*

83. **Advanced Quantitative Laboratory.**

Prof. James, Assoc. Prof. Perley. Research Rooms.

Especially arranged for students of the Chemical Engineering Course. May merge at any time into 84 and will usually do so about the middle of the first semester. For Chemical Seniors.

6 Lab. per week. 1st S.

84. **Thesis. (Chemical Research.)**

Prof. James, Assoc. Prof. Perley. Research Rooms.

The work of the last semester of the Chemical Engineering Course is given up to the special study of some selected subject in any branch of chemical science and the student is required to present a thesis showing him to be a careful manipulator and a person of independent thought. *8 Lab. per week. 2d S.*

DAIRYING.

PROF. FULLER, ASST. PROF. WILSON.

51. **Domestic Dairying.** Asst. Prof. Wilson. Dairy Bldg.

Nutritive and economic value of milk; milk hygiene, and the relation of milk to public health; market milk, modified milk, condensed milk, milk powders, fermented milks; butter, cheese and ice cream. Laboratory exercises are given in manufacture and in testing purity of dairy products. Elective for Home Economics and Arts and Science Juniors and Seniors. *2 Lec., 1 Lab. per week. 1st S.*

52. **Farm Dairying.** Asst. Prof. Wilson. Dairy Bldg.

Dairying in its relation to other branches of agriculture and other industries; study of the composition of milk; the use of the Babcock

test, and tests for determining acidity of milk; the use of the lactometer in detecting adulteration of milk; value and methods of keeping records of dairy cows; coöperation in dairying. Required of all Sophomore Agricultural students. *2 Lec., 1 Lab. per week. 2d S.*

53. Butter Making. Prof. Fuller. Dairy Bldg.

A study of the secretion, and of the chemical and physical properties of milk; different systems of creaming, and factors influencing efficiency of hand separators; pasteurization, cream ripening, commercial starters, churning and machinery. Required for Animal Husbandry and Dairy Juniors. Elective for other Agricultural students.

Prerequisite—Dairying 52. *2 Lec., 1 Lab., per week. 1st S.*

54. Market Milk. Prof. Fuller. Dairy Bldg.

A study of the value of milk as a food; the production and handling of market milk, of certified and modified milk; commercial milk inspection. Exercises will be given in the judging of milk and cream and scoring of dairy barns. For Animal Husbandry and Dairy and General or Teaching Juniors. Elective for all other students.

Prerequisite—Dairying 52. *2 Lec., 1 Lab. per week. 2d S.*

55. Factory Management. Prof. Fuller. Dairy Bldg.

Lectures and recitations on the organization, location, construction and operation of factories; special problems connected with the manufacture of butter; dairy conditions in foreign countries; scoring of butter. Elective.

Prerequisites—Dairying 52 and 53. *2 Lec., 1 Lab. per week. 1st S.*

57. Dairy Bacteriology. Asst. Prof. Wilson. Dairy Bldg.

Methods of bateriological analysis of milk and its products; isolation and study of the different types of dairy bacteria; relation of bacteria to milk and its products; study of effect of separation, clarification, pasteurization, aëration, and straining on bacteria in milk; and the application of bacteriological principles to the dairy industry. Elective for Animal Husbandry and Dairy Seniors.

Prerequisite—Botany 56. *1 Lec., 2 Lab. per week. 1st S.*

58. Cheese Making. Asst. Prof. Wilson. Dairy Bldg.

Lectures and laboratory work covering the details of manufacture, curing and marketing of the more important kinds of cheese.

Prerequisite—Dairying 52. *2 Lec., 1 Lab. per week. 2d S.*

60. Ice Cream Making. Asst. Prof. Wilson. Dairy Bldg.

A study of the making, handling, and marketing of lacto, ices, and ice cream. Elective.

Prerequisite—Dairying 52. *1 Lec., 1 Lab. per week. 2d S.*

64. Dairy Research. Prof. Fuller. Dairy Bldg.

A study of the work of the experiment stations and other dairy literature. Elective.

Prerequisite—6 credit hours in Dairying. *2 Rec. per week. 2d S.*

DRAWING.

PROF. HUDDLESTON, MR. LATON, MR. ———.

These subjects are of an industrial and cultural nature and include the mathematical, architectural and free-hand branches of the subject.

Recitation or lecture requires one hour in the class room with assigned work to be done outside. Drawing period requires a minimum of two and one-half hours in the drafting room.

Partial credit may be given for work done in preparatory schools if the work is satisfactory to the department. In order to get credit the student must submit for examination the work done in the preparatory school. No college credit will be given for work submitted for entrance.

Students are advised not to purchase drawing materials before consultation with the drawing instructor.

51. Engineering Drawing. Mr. Laton. 3–52 D.H.

Mr. ———. 2–49 D. H.

A subject devoted to the fundamentals of engineering drawing and includes free-hand lettering; the use of drawing instruments; inking; tracing; orthographic projection as a study of the relation of different views of an object; and isometric and oblique projection as a study in the pictorial representation of an object. For Engineering and Mechanic Arts Freshmen. *2 drawing periods per week. 1st S.*

52. Machine Drawing. Mr. Laton. 3–52 D.H.

Detail and assembly drawing of machines and machine parts; making of blue-prints; instruction in drafting room practice and standards with a brief study of cams and gears. For Electrical, Mechanical and Mechanic Arts Sophomores.

Prerequisite—Drawing 51. *3 drawing periods per week. 2d S.*

53. Descriptive Geometry. Mr. Laton. 3–52 D.H.

An application of the principles of descriptive geometry to the solution of problems in points, lines, planes and solids; including practical problems on bridge beams, rafters, piping, etc. For Electrical, Mechanical and Mechanic Arts Sophomores.

Prerequisites—Drawing 51 and Mathematics 53.

1 Lec.; 2 drawing periods per week. 1st S.

54. Agricultural Drawing.

Prof. Huddleston and Mr. ———. 3–52 D.H.

Instruction in this subject includes drafting room exercises in free-hand lettering; the use of drawing instruments; projection drawing as a study of the relation of different views of a given object or structure; isometric drawing as a study in pictorial representation; together with the drawing of plans and elevations of simple farm structures. For Agricultural Freshmen. *2 drawing periods per week. 2d S.*

63. Free-hand Drawing. Prof. Huddleston. 3–55 D.H.

Pencil drawing from geometrical models as a study of proportion, form and free-hand perspective, followed by pencil and charcoal sketching from plaster casts of historic ornament and antique sculpture. Elective for all students. *2 drawing periods per week. 1st S.*

63a. Advanced Free-hand Drawing. Prof. Huddleston. 3–55 D.H.

A continuation of charcoal drawing from the antique with special work to meet the needs of the students in pen and ink sketching and rendering and modeling in clay from relief ornament and sculpture. Elective for all students.

Prerequisite—Drawing 63; 64 or 69. 2 drawing periods per week. 1st S.

64. Free-hand Drawing. Prof. Huddleston. 3–55 D.H.

For Mechanic Arts Sophomores.

Same as Drawing 63. *2 drawing periods per week. 2d S.*

64a. Advanced Free-hand Drawing. Prof. Huddleston. 3–55 D.H.

Same as Drawing 63a. *2 drawing periods per week. 2d S.*

NOTE.—The above subjects of Drawing 63, 63a, 64, and 64a are of special value to students who expect to enter the field of teaching, nature study or biological research and are elective for all students subject to such conditions as their respective divisions and the Head of the department of drawing may prescribe.

65. Architectural Drawing. Prof. Huddleston. 2–39 D.H.

Drafting room exercises devoted to an analytical study of house plans and modern methods of building construction followed by quarter-inch scale working drawings with necessary scale and full-size details for a small frame house designed by the student with reference to local conditions. For Mechanic Arts Juniors.

Prerequisites—Drawing 51 and Shop 60.

2 drawing periods per week. 1st S.

66. Architectural Drawing.

Prof. Huddleston and Mr. Laton. 2–39 D.H.

A continuation of Drawing 65 with special attention given to interior, exterior and framing details followed by a brief study of sheet metal and ornamental iron work. For Mechanic Arts Juniors.

Prerequisite—Drawing 65. *2 drawing periods per week. 2d S.*

67. House Planning. Prof. Huddleston and Mr. ———. 2–39 D.H.

Instruction is given in free-hand lettering; the use of drawing instruments; projection drawing as a study of the relation of views of a given object or structure; isometric drawing as a study of pictorial representation; together with the drawing of a simple house plan as a study in architectural representation. For Home Economics Freshmen.

2 drawing periods per week. 1st S.

68. House-Structure. Prof. Huddleston. 2–39 D.H.

A subject dealing with the house-structure considered from the standpoint of economics and of architecture. Lectures and recitations devoted to the study of the relation of the house plan to home making; to the individual family; individual site, garden and accessory buildings; supplemented by an analytical study of house plans with special reference to local conditions and the preparation of working drawings and details of a house designed by the student to conform to specified requirements. For Home Economics Freshmen.

Prerequisite—Drawing 67. Parallel—Home Economics 2.

1 Lec.; 1 drawing period per week. 2d S.

69. Free-hand Drawing. Prof. Huddleston. 3–55 D.H.

Pencil drawing from geometrical models as a study of proportion, form and free-hand perspective, followed by pencil and charcoal sketching from plaster casts of historic ornament and antique sculpture. For Home Economics Sophomores. *2 drawing periods per week. 1st S.*

70. Color and Design. Prof. Huddleston. 3–55 D.H.

The first half of the semester will consist of lectures on color theories, harmonies and qualities based on spectral colors and supplemented with studio work with water-color.

The second half of the semester will consist of lectures on the principles of design, supplemented by studio work of color problems applicable to home decorations and costume design.

The object of this subject is to give to students a working knowledge of color such as will help them to express themselves appropriately in their clothing as well as develop good taste in color selections for home decoration. For Home Economics Sophomores.

Prerequisites—Drawing 63; 64 or 69.

1 Lec.; 1 drawing period per week. 2d S.

72. Practical Mathematics. Mr. Laton. 2–49 D.H.

The instruction in this subject includes useful applications of algebra, geometry and the first principles of trigonometry and is directly related to practical problems the student will meet after he has finished his course. For Mechanic Arts Seniors.

Prerequisite—Drawing 66. *1 Rec. per week. 1st S.*

ECONOMICS.

ASST. PROF. MCKAY, MR. HAM.

1. Elementary Economics. Asst. Prof. McKay. 204 Lib.

This subject is designed to introduce the student into the broad field of economics: the kind and nature of wealth; its distribution among producers in the form of rent, wages, interest and profits; the part played by nature, by labor, and by capital in wealth production; the field of organized labor; the forms and relative advantages of different types of business organization, including corporations and trusts; the subject of markets and the forces which determine prices; the principles of credit, banking and foreign exchange; the tariff and taxation.

Two sections: one for Agricultural and Engineering Seniors; the other for Arts and Science and Mechanic Arts Sophomores.

1 Lec., 2 Rec. per week. 1st. S.

2. Geography of Commerce. Asst. Prof. McKay. 201 Lib.

This subject gives rather wide information regarding the facts and principles of commerce, and the commercial development of nations. The importance of natural physical conditions as determinants of commerce is emphasized, as well as that of transportation and exchange facilities. Ports and ocean trade routes are also considered. The more important commodities of commerce are studied and the regions of their production, their markets and prices. Finally a comparison is made of the principal commercial countries of the world. For Arts and Science Freshmen and Sophomores.

2 Lec., 1 Rec. per week. 2d S.

4. Money and Banking. Asst. Prof. McKay. 204 Lib.

A study of the principles of money; coinage and coinage laws; legal tender; the relation of money and prices; bimetallism; the kinds of banks and the services they render; the national banking systems of this and other countries, including our new Federal Reserve System. Elective for Arts and Science Juniors and Seniors and for Agricultural and Engineering Seniors.

Economics 4 and 6 are given in alternate years. Economics 4 will be given in 1918–1919.

Prerequisite—Economics 1. *2 Lec., 1 Rec. per week. 2d S.*

5. Labor Problems. Asst. Prof. McKay. 204 Lib.

This subject is concerned primarily with the problems of organized labor; strikes and their causes, lock-outs, boycotts, the open and closed shop, minimum wage, settlement of disputes by arbitration and other means; compensation for industrial accidents, and labor legislation. Some attention is given in this subject to such organizations as the American Federation of Labor and the Industrial Workers of the World, their ideals, aims and methods. Elective for Arts and Science Juniors and Seniors and Agricultural Seniors.

Economics 5 and 9 are given in alternate years. Economics 5 will be given in 1918–1919.

Prerequisite—Economics 1. *2 Lec., 1 Rec. per week. 1st S.*

6. Public Finance and Taxation. Asst. Prof. McKay. 204 Lib.

The subject-matter has to do with the costs of conducting governments, the methods of raising the necessary funds, including the great problems of taxation, the kinds of taxes, and the way they are distributed. Property, income and inheritance taxes, tariffs and internal revenue duties, the single tax and progressive taxes are considered. Elective for Arts and Science Juniors and Seniors and Agricultural and Engineering Seniors.

Economics 4 and 6 are given in alternate years. Economics 6 will be given in 1917–1918.

Prerequisite—Economics 1. *1 Lec., 2 Rec. per week. 2d S.*

8. Agricultural Economics. Asst. Prof. McKay. 204 Lib.

Economic problems in agriculture, such as prices of farm products, marketing, the produce exchanges, and speculation, co-operative organizations and rural credit, constitute the work of the semester. In addition, each member of the class is expected to make a special individual study of some topic in the field. Required for Agricultural Seniors. Elective for Arts and Science Juniors and Seniors.

Prerequisite—Economics 1. *1 Lec., 2 Rec. per week. 2d S.*

9. Corporation Finance. Asst. Prof. McKay. 204 Lib.

A study of the methods used to finance corporations; the various types of stocks and bonds; stock exchanges; underwriting; government regulation of corporations. Elective for Arts and Science Juniors and Seniors and Agricultural Seniors.

Economics 5 and 9 are given in alternate years. Economics 9 will be given in 1917–1918.

Prerequisite—Economics 1. *1 Lec., 1 Rec. per week. 1st S.*

Economics 13. Business Accounting. Mr. Ham. 107 T.H.

A study of the fundamental principles of accounting, first in private or individual business, then the partnership, and closing with the cor-

poration. Interpretation of accounts, business statements and records. The subject is intentionally made to cover a broad field that it may be of the greatest service to students from all three divisions, both men and women. Elective for Arts and Science Sophomores and Juniors, and for Seniors from all divisions.

2 Rec., 1 Lab. per week. 1st S.

Economics 14. Cost-Accounting. Mr. Ham. 107 T.H.

The study of cost-accounting as it operates in a modern manufacturing concern. The student handles and becomes familiar with the best cost-keeping forms and records. Careful study is made of costs, especial attention being given to overhead expense or burden, including the problems of depreciation and idle factor time. Elective for Arts and Science Sophomores and Juniors, and for Seniors from all divisions.

Prerequisite—Economics 13. *2 Rec., 1 Lab. per week. 2d S.*

Economics 15. Advanced Accounting Problems. Mr. Ham. 107 T.H.

Advanced theory of accounting supplemented with the solution of practical problems. Special study will be made of valuations, realizations, liquidations, insolvencies, executorships, and public utility accounting. This is largely a course in problems making practical application of the theory of previous courses. Elective for Arts and Science Juniors and Seniors.

Prerequisites—Economics 13 and 14. *3 Rec. per week. 1st S.*

Economics 16. Auditing Theory and Practice. Mr. Ham. 206 T.H.

Study of various kinds of audits, and their values; duties and responsibilities of the auditor; his report, certificates, etc. Special problems and model reports supplement the theory in the subject. Elective for Arts and Science Juniors and Seniors.

Prerequisite—Economics 13. *3 Rec. per week. 2d S.*

DEPARTMENT OF EDUCATION AND PSYCHOLOGY.

PROF. SIMMERS.

The training of teachers for high schools is recognized as being one of the important functions of New Hampshire College. In order to do this more adequately a department of education and psychology has been established which has as its aims:

1. To offer prospective high-school teachers, principals, and superintendents the necessary technical training for their profession.
2. To present educational history and problems in their more philosophic and scientific aspects so as to be valuable to all college students whether they become teachers or not.

To this end, it is expected that all students intending to teach will elect at least the following subjects in the department of education and

psychology, making a total of thirteen hours,—Education 1 or 3 or 6, and 2 and 5, Psychology 52 and 53.

The prospective teacher should also take either the general or teacher's course in agriculture, the manual arts course, or the course in home economics. Or, if registered in the Arts and Science division, he should elect a major and one or two minors in its several departments. The aim should be to attain as intensive and extensive scholarship as possible during the four years spent in college.

Education.

PROF. SIMMERS.

4. School Hygiene. Prof. Simmers. 211 T.H.

The physical welfare of the pupil is considered in relation to his moral, social and intellectual development. Hygiene of play, study, work, daily programs, the selection of school building site, heating, ventilation, medical inspection, communicable diseases, detection and treatment of defects of the senses, laws of fatigue and its relief and prevention, etc., are studied. Required of Manual Arts Juniors and Agricultural Seniors. Elective for all other students. Lectures, assigned readings and discussion. Junior subject. *2 Rec. per week. 2d S.*

5. Secondary Education. Prof. Simmers. 211 T.H.

A systematic study of secondary school problems is made. Some of the topics considered are: The proper place and function of the high school, its relation to the grades, college and practical life; methods of instruction, program of studies, examinations and promotions, educational values of the various studies, qualities of an efficient teacher, and relation to the various elements of the school community. Each student will be required to make systematic observations in schools near Durham. Required of Agricultural and Manual Arts Juniors. Elective for all other students. Lectures, assigned readings and discussion. Senior subject. *3 Rec. per week. 1st S.*

6. History and Theory of Industrial Education.

Prof. Simmers. 211 T.H.

Some of the topics considered are: Primitive industry and educational practice, Industrial activity in the monasteries, the apprenticeship system, the Fellenberg Institute at Hofwyl, the manual training, agricultural, and home economics movements; Federal and State legislation concerning industrial education, vocational guidance. Typical industrial, trade, evening, and continuation schools, of the United States will be studied. For Manual Arts Seniors. Elective for all other students. Lectures, assigned readings and discussion. Senior subject. *2 Rec. per week. 2d S.*

*** 7. Principles of Education.** Prof. Simmers. 211 T.H.

In this subject a general background for educational thought and practice is sketched. The biological, psychological, social, and ethical bases of education are considered. The aim is to give underlying principles and to show how they should function in the work of the grades and the high school. The subject is fundamental for those students intending to become principals or superintendents of schools. Elective for all students. Lectures, assigned readings and discussion. Senior subject.

Prerequisite—Psychology 52. *3 Rec. per week. 1st S.*

† 8. History of Education. Prof. Simmers. 211 T.H.

Before and during the Middle Ages. An attempt is made to show the relationship between the industrial, intellectual, social, philosophic, and religious ideals of the times, and the varying conceptions of aim, method, curricula, and organization of educational agencies. Required of Agricultural seniors. Elective for all other students. Lectures, assigned readings and discussion. Senior subject. *2 Rec. per week. 2d S.*

*** 9. Administration and Supervision.** Prof. Simmers. 211 T.H.

This subject is designed for students who contemplate engaging in administrative or supervisory work. It aims at a systematic study of organization and management of school systems, promotion of pupils, standards of efficiency, powers and duties of the board of education, school law, school finance, etc. Elective for all students who have taken the other subjects in education. Lectures, assigned readings and discussion. Senior subject. *2 Rec. per week. 1st S.*

Psychology 52, 53. *See* pages 118–119.

† 10. History of Education. Prof. Simmers. 211 T.H.

Modern Period. This subject is quite similar to Education 1 in aim and method of treatment. It deals with the progress of society and related educational problems from the time of Comenius (beginning of seventeenth century) to the present time. It also attempts to show the origin and evolution of present theory and practice in education. Required of Agricultural Seniors. Elective for all other students. Lectures, assigned readings and discussion. Senior subject.

2 Rec. per week. 2d S.

* Education 7 and 9 are given in alternate years. Education 7 is given in 1917–1918.

† Education 8 and 10 are given in alternate years. Education 8 is given in 1917–1918.

ELECTRICAL ENGINEERING.

PROF. HEWITT, ASST. PROF. HITCHCOCK, MR. WHIPPLE.

1. Dynamo Electric Machinery. Prof. Hewitt. 1–29 D.H.

This subject includes a general study of the various electrical quantities such as electromotive force, current, resistance, permeability of iron; the use of standard measuring instruments; direct and alternating current dynamos and motors including elementary theory. A large number of practical problems illustrate the applications of the above. One exercise per week is devoted to laboratory experiments illustrating the practical application of theory. For Electrical and Mechanical Juniors.

Prerequisites—Physics 52 and Mathematics 56.

3 Rec., 1 Lab. per week. 1st S.

2. Dynamo Electric Machinery. Asst. Prof. Hitchcock. 1–26 D.H.

A continuation of Electrical Engineering 1. A study of electrical measuring instruments, cells, batteries, electrolysis, electroplating, electrotyping, the elements of photometry and electric illumination, inductance, capacity, and elementary alternating currents. One exercise per week is devoted to laboratory experiments illustrating the practical application of theory. For Electrical and Mechanical Juniors.

Prerequisite—Electrical Engineering 1. 3 Rec. 1 Lab. per week. 2d S.

3. Telegraph and Telephone. Asst. Prof. Hitchcock. 1–26 D.H.

A study of the acoustic and electrical principles of telephony, transmitting and receiving apparatus, magneto and common-battery switchboards and accessories, selective party-line systems, intercommunicating systems, overhead and underground construction, phantom, simplex, and composite circuits, transpositions, etc. The principles of telegraphy, sounders, repeaters, etc. Wireless telegraphy and telephony. Automatic devices, electric signaling for purposes of alarms, railroads, etc. Elective. *1 Rec. per week. 1st S.*

6. Application of Electricity to Agriculture. Prof. Hewitt. 1–29 D.H.

Arranged for and adapted to students taking agriculture. The subject consists of a general study of the electric dynamo and motor, method of connecting same to the supply circuit and the care and operation of each; a general study of simple problems in transmission, methods of wiring for electric power and lighting; the telephone including the general principles upon which it operates and different systems of installation; electric bell wiring and signaling apparatus; simple water power developments and equipments; electrical utensils for domestic use, etc. Elective. *2 Rec., 1 Lab. per week. 2d S.*

9. Industrial Electricity. Prof. Hewitt. 1–29 D.H.

Arranged for and adapted to students taking the Mechanic Arts Course. Open only to Seniors in the Mechanic Arts Course.

2 Rec., 1 Lab. per week. 1st S.

11. Electrical Engineering Practice. Asst. Prof. Hitchcock. 1–26 D.H.

A study of the properties of periodic curves, the effects of inductance and capacity, the use of complex quantities, and a more detailed study of generators, motors, transformers, converters, and other electrical apparatus. For Electrical Seniors.

Prerequisite—Electrical Engineering 2. *4 Rec. per week. 1st S.*

12. Electrical Engineering Practice. Prof. Hewitt. 1–29 D.H.

A continuation and completion of Electrical Engineering 11. Hydro-electric developments including the design of reinforced concrete dams and power houses and the general subjects of water-power engineering; high tension power transmission; design of transmission lines and distributing systems; selection of apparatus for generating stations and distributing systems; lightning protection. For Electrical and Mechanical Seniors.

Prerequisite—Electrical Engineering 11. *4 Rec. per week. 2d S.*

14. Electric Railways. Asst. Prof. Hitchcock. 1–26 D.H.

The practicability of construction from an economic standpoint; determination of the size, type, and seating capacity of cars; track location; train schedules; methods of control; train resistance; speed-time and current-time curves; selection of motors; the feeder system; electrolysis; power station and substation location; storage batteries; electric track switches; etc. Illustrated by problems. For Electrical Seniors. *2 Rec. per week. 2d S.*

15. Electrical Laboratory.

Prof. Hewitt, Asst. Prof. Hitchcock. Basement D.H.

An advanced series of experiments. A written report will be required for which one additional credit hour will be given. For Electrical Seniors. *2 Lab. per week, 3 Hours' Credit. 1st S.*

16. Electrical Laboratory.

Prof. Hewitt, Asst. Prof. Hitchcock. Basement D.H.

A continuation of Electrical Engineering 15, with experiments of a more advanced nature. A written report will be required for which one additional credit hour will be given. For Electrical Seniors.

2 Lab. per week, 3 Hours' Credit. 2d S.

18. Thesis. Prof. Hewitt, Asst. Prof. Hitchcock.

A deposit of fifteen dollars to cover any damage done to instruments, apparatus, etc., is required in this subject. Any unexpended balance is

refunded at the close of the college year. Where apparatus is constructed as a part of a thesis, it shall remain the property of the department. Optional with head of department. For Electrical Seniors.

1 Rec., 2 Lab. per week. 2d S.

21. Industrial Electricity. Prof. Hewitt. 1–29 D.H.

A careful study of the principles and methods employed in electrical measurements; resistance of wire and batteries; current measurement by ammeters and electroylsis; the use of electrical measuring instruments; a series of laboratory experiments specially arranged to meet the requirements of chemical engineers. A brief study will be made of the dynamo, motor, transformer, primary and secondary batteries, arc and incandescent lamps and the general principles of electrical distribution. Experiments in electrolysis, electrical furnaces, reduction of metals, etc., are provided. For Chemical Seniors.

2 Rec., 1 Lab. per week. 1st S.

22. Industrial Electricity. Prof Hewitt. 1–29 D.H.

A continuation of Electrical Engineering 21, but more advanced in nature. For Chemical Seniors.

Prerequisite—Electrical Engineering 21.

2 Rec., 1 Lab. per week. 2d S.

24. Design of Electrical Machinery. Asst. Prof. Hitchcock. 1–28 D.H.

A study of the design of the more important electrical machines, including the calculation of the dimensions of the machine, both electrical and mechanical, and the predetermination of its performance from the dimensions. For Electrical Seniors.

Prerequisite—Electrical Engineering 11. 2 Lab. per week. 2d S.

26. Illuminating Engineering. Asst. Prof. Hitchcock. 1–26 D.H.

A theoretical discussion of the principles of illumination and the application of these principles to concrete examples. For Electrical Seniors who do not take Electrical Engineering 18. For other Electrical Seniors. *2 Rec. per week. 2d S.*

27. Contractors and Specifications. Prof. Hewitt. 1–29 D.H.

The laws and forms of engineering contracts; standard specifications for materials of construction and apparatus. Elective for Mechanical and Electrical Seniors. *1 Rec. per week. 1st S.*

30. Problems. Prof. Hitchcock. 1–26 D.H.

A large number of problems in both direct current and alternating current will be performed to illustrate the application of Electrical principles. Elective for Mechanical and Electrical Juniors.

1 Rec. per week. 1st S.

ENGLISH.

PROF. RICHARDS, PROF. SCOTT, ASST. PROF. SCUDDER, MR. CRAFTS, MR. RAYMOND.

51. English Composition.

I. Prof. Richards. 205 T.H.
II. Asst. Prof. Scudder. 208 T.H.
III. Mr. Crafts. 205 T.H.

The chief aim of this subject is a thorough review of English grammar and syntax, particular stress being laid upon the fundamentals of composition; such as correct spelling, choice of words, and clearness of sentence structure. Short themes, both prepared and impromptu, and monthly reports upon outside reading, are required. For all Freshmen.

3 Rec. per week. 1st S.

52. English Composition.

I. Prof. Richards. 205 T.H.
II. Asst. Prof. Scudder. 208 T.H.
III. Mr. Crafts. 205 T.H.

This subject aims at training the student in the principles of good writing and in the appreciation of good literature. A study is made of exposition, narration, description and argumentation, and frequent themes illustrating the functions of these kinds of writing are required. Monthly book reports, and a careful bibliography of the literature upon some topic suggested by the instructor, are submitted by each member of the class. Finally, the reading aloud in class of selections from contemporary literature is practiced frequently throughout the semester. For all Freshmen except Engineers who elect it in the first semester, Sophomore year. *3 Rec. per week. 1st and 2d S.*

53. Advanced Composition and Literary Criticism. Prof. Richards. 205 T.H.

This is a subject in advanced English composition, in which the various forms of writing, such as the essay, the short story, the business letter, and book reviewing are treated. To supplement these exercises the student is required to read and criticize intelligently the writings of at least one noted prose writer and one poet, embodying the results in a carefully prepared essay at the close of the semester. For Mechanic Arts Sophomores. Elective for Arts and Science Sophomores and Juniors.

Prerequisites—English 51 and 52. *3 Rec. per week. 1st S.*

54. Introduction to English Literature. Prof. Richards. 211 T.H.

A general survey of English literature from the ninth to the twentieth century. To one who intends to teach English it is of fundamental importance. Lectures, recitations and outside reading constitute the work of the semester. Elective for all classes.

Prerequisite—English 52. *3 Rec. per week. 2d S.*

***55. The English Novel.** Prof. Richards. 205 T.H.

The historical development of the English novel and the chief characteristics of modern fiction are studied in this class. Lectures, recitations and extensive outside reading constitute the work of the semester. Elective for Arts and Science and Mechanic Arts Juniors and Seniors.

Prerequisites—English 51 and 52. *3 Rec. per week. 1st S.*

56. Argumentation and Debating. Prof. Richards. 205 T.H.

This subject offers training in the fundamental principles of oral debate and written argumentation, acquaints the student with the laws of parliamentary procedure, and introduces him to the rules and customs of state and national legislatures. An essential part of the study—in some respects the most valuable feature—is the practice in formal and extemporary debate, such debates being held at least once a week throughout the semester. Elective for Sophomores, Juniors and Seniors.

Prerequisites—English 51 and 52. *3 Rec. per week. 2d S.*

***57. Modern English Poetry.** Prof. Richards. 205 T.H.

A study is made of the great poems of English literature written between 1790 and 1890. While special attention is given to the poetry of Wordsworth, Tennyson and Browning, considerable outside reading is required in the works of Shelley, Keats, Rossetti, Arnold and other poets of the nineteenth century. Elective for Arts and Science and Mechanic Arts Juniors and Seniors.

Prerequisites—English 51 and 52. *3 Rec. per week. 1st S.*

58. History of the English Drama. Asst. Prof. Scudder. 208 T.H.

A survey of the English drama from its beginnings to the Closing of the Theaters. Constant reading of the plays with written criticisms and reports is required. Elective for Sophomores, Juniors and Seniors.

Prerequisite—English 52. *3 Lec. per week. 2d S.*

59. Chaucer. Prof. Richards. 205 T.H.

Lectures upon the life and times of Chaucer will be given, and the *Canterbury Tales* will be read and discussed in class. At the close of the study each student will hand in a thesis embodying the results of independent investigation of Chaucerian literature. For Seniors majoring in English.

Prerequisites—English 52, 54, 57, 62. *3 Rec. per week. 1st S.*

60. American Literature. Prof. Scott. 202 Lib.

Lectures and extensive outside reading. Elective for Arts and Science and Mechanic Arts Juniors and Agricultural Seniors.

Prerequisites—English 51 and 52. *4 Rec. per week. 2d S.*

*English 55 and 57 are given in alternate years. English 55 will be given in 1917–1918.

61. Modern English Prose. Prof. Richards. 205 T.H.

A study of English prose, exclusive of fiction, in the nineteenth century. Special attention will be paid to the writings of Lamb, Macaulay, Carlyle, Newman, Arnold, Ruskin and Frederic Harrison. Lectures will be given, and written reports at frequent intervals will be required. Elective for Arts and Science Juniors and Seniors.

Prerequisites—English 51 and 52. *3 Lec. per week. 1st S.*

62. Shakespeare's Plays. Prof. Richards. 205 T.H.

A study of all of Shakespeare's plays. Recitations and occasional dramatic representations of famous scenes. A large amount of reading required. Elective for Arts and Science Juniors and Seniors.

Prerequisites—English 51 and 52. *3 Lec. per week. 2d S.*

63. Writing for Publication. Asst. Prof. Scudder. 208 T.H.

A practical study of the preparation of articles for the newspapers and magazines. The student is taught to select the essential and present it tellingly. It is for all whose vocation will demand frequent writing for publication, and as a preparation in part for those who intend to take up newspaper work after graduation. It does not cover the entire field of journalism, but the student will be instructed in the duties of a reporter and be given constant practice in writing news stories. Elective for those who have attained a grade of C or higher in English 52.

Prerequisites—English 51 and 52 (with the added provision indicated above). *3 Rec. per week. 1st S.*

66. The Teaching of High School English. Prof. Richards. 211 T.H.

This subject is especially designed for those who major in English. The English classics taught in the high schools are read and discussed from the viewpoint of the teacher, and the different methods of presenting the epic, novel, drama and short story are studied and practised. Elective for Arts and Science Seniors.

Prerequisites—English 50 and 62. *1 Lec. per week. 2d S.*

ENTOMOLOGY.

PROF. O'KANE, MR. CLEVELAND.

1. Principles of Economic Entomology. Prof. O'Kane. 213 T.H.

The relation of the structure and classification of insects to methods of insect control. The preparation and application of insecticides. Spray machinery and appliances. For Agricultural Sophomores. Elective for Arts and Science Sophomores, Juniors and Seniors.

2 Rec., 1 Lab. per week. 1st S.

2. Insects of Orchard and Garden. Mr. Cleveland. 213 T.H.

The application of methods of insect control to typical injurious species. Studies in the life histories and habits of important insect pests of orchard, garden and certain field crops. Adapted especially for students in Horticulture and in General Agriculture. Elective for Agricultural and for Arts and Science Juniors and Seniors.

Prerequisite—Entomology 1. *1 Lec., 1 Lab. per week. 2d S.*

3. Insects of Domestic Animals. Mr. Cleveland. 213 T.H.

The insect enemies of domestic live stock; their life histories, habits and means of control. Adapted especially for students in Animal Husbandry. Elective for Agricultural and for Arts and Science Juniors and Seniors.

Prerequisite—Entomology 1. *1 Lec., 1 Lab. per week. 1st S.*

4. Household Insects. Medical Entomology.
Prof. O'Kane, Mr. Cleveland. 213 T.H.

The life histories, habits and means of control of insects of the household and of stored products. The relation of insects to disease. Adapted especially for students in Home Economics. Elective for Arts and Science Sophomores, Juniors and Seniors, and for Agricultural Juniors and Seniors. *2 Lec. per week. 2d S.*

5. Advanced Economic Entomology. Prof. O'Kane. 213 T.H.

Detailed studies of problems involved in applied entomology. The literature of economic entomology. Investigational methods. Practice in arranging projects. Original investigations in the life history and habits of one or more injurious species. Adapted for advanced students. Elective for Agricultural and for Arts and Science Juniors and Seniors. Open to students only by permission of head of department. Credit and hours to be arranged. 1st S.

6. Advanced Economic Entomology. Prof. O'Kane. 213 T.H.

Continuation of Entomology 5. 2d S.

7. Forest Insects. Mr. Cleveland. 213 T.H.

Studies in the life histories and habits of the more destructive forest insects and their means of control. Especially adapted for students in Forestry. Elective for Agricultural and for Arts and Science Juniors and Seniors.

Prerequisite—Entomology 1. *1 Lec., 1 Lab. per week. 1st S.*

FORESTRY.

PROF. WOODWARD, MR. GAMASH.

51. Principles of Forestry. Prof. Woodward. 202 M.H.

This subject is intended to give the student a general knowledge of forestry; relation to forests of soil, moisture, light and climatic conditions; the important systems of treating woodlands practised in Europe and the United States; the habits of important economic timber trees and the character and uses of these woods; the preparation of forest maps and working plans, including rough estimates of standing timber and the rate of growth of different stands; the artificial regeneration of forests by seeding and planting; forest fires; the forest regions of the United States; the practise of forestry by the federal and state governments. For all Agricultural Sophomores. Elective for other students. *2 Lec., 1 Lab. per week. 1st S.*

52. Silviculture. Prof. Woodward. 202 M.H.

The establishment of forests through artificial regeneration; value of different species; seed collecting; testing and storage; nursery work; direct seeding; planting; care of plantations; cost of establishing plantations; planting plans. Supplemented by actual nursery and planting work. For Forestry Juniors. Elective for other students.

Prerequisite—Forestry 55. *2 Lec., 1 Lab. per week. 2d S.*

53. Dendrology. Mr. Gamash. 202 M.H.

A study of the habits, distribution and characteristics of the native trees and important introduced trees of the Northeastern States, in both summer and winter conditions, and with particular reference to the prominent and constant features which lead to ready identification; and a general study of the important timber trees of the United States, including the structure of their woods. For Forestry and Mechanic Arts Juniors. Elective for other students who have taken Botany 51 and 52. *2 Lec., 1 Lab. per week. 1st S.*

54. Forest Mensuration. Mr. Gamash. 202 M.H.

Methods of determining the contents and growth of individual trees and of whole forests by different units; use of log rules and the measurement of logs and felled trees; the measurement of standing trees; methods of timber estimating; study of growth in diameter; height, and volume; construction and use of volume and yield tables. This subject calls for the use of forest instruments and actual practice in measuring trees and whole stands. For Forestry Juniors. Elective for other students. *2 Lec., 1 Lab. per week. 2d S.*

55. Silviculture. Prof. Woodward. 202 M.H.

A study of the life history of trees; the relation of the different species to light, moisture, soil, temperature and to each other in the forest; reproduction of trees, form and character of stands; the origin and determination of forest types; forest maps; relation of forests to stream-flow; forest descriptions; the improvement of the forest through use and proper treatment; the various systems of cutting and reproducing forests by natural means as practised in Europe and the United States, supplemented by frequent woods practise and demonstrations. For Forestry Juniors. Elective for other students who are taking Forestry 53. *2 Lec., 2 Lab. per week. 1st S.*

56. Forest Management. Prof. Woodward. 202 M.H.

The economic principles underlying the management of forests; the calculation of present and future values of forest property based on productive power; financial considerations of forest management; taxation of forest land; preparation of working plans in Europe, India, and the United States. Includes collateral reading, writing on forestry subjects and discussions. For Forestry Seniors.

Prerequisites—Forestry 52, 53, 54, 55 and 57.

2 Lec., 2 Lab. per week. 2d S.

57. Forest Protection. Prof. Woodward. 202 M.H.

Consideration of practical measures for the protection of forests from fire, insects, fungous diseases, grazing, trespass, and destructive lumbering; and an examination of the federal and state laws relating to forest interests. For Forestry Seniors.

Prerequisites—Forestry 52, 53, 54, and 55. 2 Lec. per week. 1st S.

58. Advanced Forestry. Prof. Woodward. 202 M.H.

Elective for Forestry Seniors.

Prerequisites—Forestry 52, 53, 54, 55, 57, and 59.

3 Lab. per week. 2d S.

59. Advanced Forestry. Prof. Woodward. 202 M.H.

Work to be arranged according to the needs of individual students. Elective for Forestry Seniors.

Prerequisites—Forestry 52, 53, 54, and 55. 3 Rec. per week. 1st S.

60. Forest Utilization. Prof. Woodward. 202 M.H.

Advanced elective subject for Mechanic Arts Juniors or Seniors. Work to be arranged to meet the needs of individual students.

Prerequisite—Forestry 53. 3 Rec. per week. 2d S.

62. Practice of Forestry. Prof. Woodward. 202 M.H.

Development and present status of forestry in different countries; the work of the federal government and its management of the national

forests; state forest policies; the lumber industry in the United States; the application of forestry to different regions. For Forestry Seniors. Lectures and Special Readings.

Prerequisites—Forestry 52, 53, 54, and 55. *3 Lec. per week.* *1st S.*

64. Town Forest Problems. Prof. Woodward. 202 M.H.

A detailed study of the forest problems of his home town for one who has had Forestry 51. Aimed to prepare those who are planning to settle in a definite locality to become expert in timber estimating and valuation, and artificial and natural regeneration in that locality. Individual conferences and reports.

Prerequisite—Forestry 51. *2 Rec. per week.* *2d S.*

FRENCH.

PROF. WHORISKEY, MR. CULVER, MR. RAYMOND.

1. Elementary French. Mr. Culver. 102 T.H.

Elements of French Grammar. Reading of simple stories; conversation and dictation. Elective for Arts and Science students.

3 Rec. per week. *1st S.*

2. A continuation of French 1. Mr. Culver, Mr. Raymond. 102 T.H.

Elective for Arts and Science students. *3 Rec. per week.* *2d S.*

3. French Prose. Prof. Whoriskey, Mr. Culver. 107 T.H.

Reading and translation; composition; outside reading. Elective for Arts and Science Sophomores. Freshmen who have offered French for admission are allowed to take French 3 and 4.

Prerequisite—French 2. *3 Rec. per week.* *1st S.*

4. A continuation of French 3. Mr. Culver. 107 T.H.

Prerequisite—French 3. *3 Rec. per week.* *2d S.*

***5. French Literature of the Nineteenth Century.**

Mr. Culver. 107 T.H.

Selections from Hugo, Balzac, Sand, Dumas père, Daudet, Gautier. Composition. Elective for Arts and Science students.

Prerequisite—French 4. *3 Rec. per week.* *1st S.*

***6. A continuation of French 5.** Mr. Culver. 107 T.H.

Elective for Arts and Science students.

Prerequisite—French 5. *3 Rec. per week.* *2d S.*

* French 7 and 8 will be given in 1917–1918 and in alternate years with French 5 and 6.

***7. French Literature of the Seventeenth Century.**
Mr. Culver. 107 T.H.

Lives and works of the following: Corneille; Racine; Molière; Bossuet; Boileau; Mme. de Sévigné; La Fontaine. Composition. Elective for Arts and Science students.

Prerequisite—French 4. *3 Rec. per week. 1st S.*

***8. A continuation of French 7.** Mr. Culver. 107 T.H.

Elective for Arts and Science students.

Prerequisite—French 7. *3 Rec. per week. 2d S.*

9. French Composition and Conversation. Mr. Culver. 107 T.H.

Elective for Arts and Science students. Recommended for those desiring to teach. *3 Rec. per week.*

10. French Composition and Conversation. Mr. Culver. 107 T.H.

A continuation of French 9. *3 Rec. per week.*

GEOLOGY.

PROF. JACKSON, MR. BATCHELDER.

51. Elementary Geology. Mr. Batchelder. 212 T.H.

The elements of geology. Special attention is given to local geology and excursions are made to various points of interest in the vicinity. For Agricultural Juniors. Elective for Mechanic Arts Juniors and Arts and Science Juniors and Seniors. *3 Rec. per week. 1st S.*

52. Historical Geology. Prof. Jackson. 212 T.H.

The development of the continents of the earth and the evolution and distribution of the animal and plant forms from the earliest times to the present. Recitations, lectures and laboratory work. Elective for Agricultural and Arts and Science Seniors.

Prerequisites—Zoölogy 51, 52 and Geology 51.

2 Rec., 1 Lab. per week. 2d S.

GERMAN.

PROF. WHORISKEY, MR. RAYMOND, MR. CRAFTS.

1. Elementary German.
Prof. Whoriskey, Mr. Raymond, Mr. Crafts. 107 T.H.

Elements of German grammar. Reading of simple stories; conversation; singing of German folk-songs. For Chemical Engineering Freshmen who have not offered German for admission. Elective for others.

3 Rec. per week. 1st S.

*French 7 and 8 will be given in 1917–1918 and in alternate years with French 5 and 6.

2. Elementary German.
Prof. Whoriskey, Mr. Raymond, Mr. Crafts. 107 T.H.

A continuation of German 1. For Chemical Engineering Freshmen who have not offered German for admission. Elective for others.
3 Rec. per week. 2d S.

3. German Prose. Prof. Whoriskey, Mr. Raymond. 107 T.H.

Reading and translation. For Chemical Engineering Sophomores. Elective for others. Freshmen who have offered German for admission are allowed to take German 3 and 4. *3 Rec. per week. 1st S.*

4. German Prose. Prof. Whoriskey. 107 T.H.

A continuation of German 3. Reading and Translation of Hauff's Lichtenstein and similar books. Elective.
Prerequisite—German 3. *3 Rec. per week. 2d S.*

***5. Goethe.** Prof. Whoriskey. 107 T.H.

His life and works. The following books are read and criticized: 1. Hermann und Dorothea; 2. Iphigenie; 3. Torquato Tasso; 4. Egmont; 5. Götz von Berlichingen; 6. Dichtung u. Wahrheit (in part); 7. Die Leiden des jungen Werters; 8. Faust, Part I. Elective for Arts and Science students.
Prerequisite—German 4. *3 Rec. per week. 1st S.*

***6. Goethe.** Prof. Whoriskey. 107 T.H.

A continuation of German 5. Elective for Arts and Science students.
Prerequisite—German 5. *3 Rec. per week. 2d S.*

***7. Schiller.** Prof. Whoriskey. 107 T.H.

His life and works. The following books are read and criticized: 1. Wilhelm Tell; 2. Maria Stuart; 3. Die Jungfrau; 4. Die Braut von Messina; 5. Wallenstein; 6. Don Carlos; 7. Geschichte d. 30 jährigen Krieges; 8. Ballads. Elective for Arts and Science students.
Prerequisite—German 4. *3 Rec. per week. 1st S.*

***8. Schiller.** Prof. Whoriskey. 107 T.H.

A continuation of German 7. Elective for Arts and Science students.
Prerequisite—German 7. *3 Rec. per week. 2d S.*

†9. German Composition and Conversation.
Prof. Whoriskey. 107 T.H.

Elective for Arts and Science students. Both aural and oral training are given in German 9, 10, 11 and 12, and opportunity is given to teach under supervision. *3 Rec. per week. 1st S.*

* German 5 and 6 are to be given in 1917–1918, German 7 and 8 in 1918–1919, and German 13 and 14 in 1919–1920.

† German 9, 10, 11 and 12 will not be given in 1917–1918.

†10. **A continuation of German 9.** Prof. Whoriskey. 107 T.H.
3 Rec. per week. 2d S.

†11. **German Composition and Conversation.**
Prof. Whoriskey. 107 T.H.
Elective. *3 Rec. per week. 1st S.*

†12. **A continuation of German 11.** Prof. Whoriskey. 107 T.H.
Elective. *3 Rec. per week. 2d S.*

*13. **Sudermann.** Prof. Whoriskey. 107 T.H.
The following books are read and criticized: 1. Frau Sorge; 2. Der Katzensteg; 3. Teja; 4. Heimat; 5. Johannes; 6. Frenssen's Jörn Uhl. Elective for Arts and Science students.
Prerequisite—German 4. *3 Rec. per week. 1st S.*

*14. **Sudermann and His Contemporaries.**
Prof. Whoriskey. 107 T.H.
A continuation of German 13.
Prerequisite—German 13. *3 Rec. per week. 2d S.*

16. **Scientific German.** Mr. Raymond. 107 T.H.
For Chemical Engineering Sophomores. *3 Rec. per week. 2d S.*

HISTORY.

PROF. SCOTT, ASST. PROF. MCKAY.

In the subjects in history an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

1. **History of Europe from 476 to 1492.** Prof. Scott. 202 Lib.
Recitations and collateral reading. Elective for Arts and Science Freshmen and Mechanic Arts Juniors. *3 Rec. per week. 1st S.*

2. **History of Europe from 1492 to 1715.** Prof. Scott. 202 Lib.
Recitations and collateral reading. Elective for Arts and Science and Mechanic Arts Freshmen. *3 Rec. per week. 2d S.*

3. **History of Europe from 1715 to 1815.** Asst. Prof. McKay. 204 Lib.
Recitations and collateral reading. Elective for Arts and Science Sophomores.
Prerequisite—History 1. *3 Rec. per week. 1st S.*

* German 5 and 6 are to be given in 1917–1918, German 7 and 8 in 1918–1919, and German 13 and 14 in 1919–1920.

† German 9, 10, 11 and 12 will not be given in 1917–1918.

4. History of Europe since 1815. Asst. Prof. McKay. 204 Lib.

Recitations and collateral reading. Elective for Arts and Science Sophomores.

Prerequisite—History 2 or History 3. *3 Rec. per week. 2d S.*

5. American History to 1801. Prof. Scott. 202 Lib.

Elective for Arts and Science Juniors and Mechanic Arts Seniors.

3 Rec. per week. 1st S.

6. Political and Constitutional History of the United States from 1801 to 1861. Prof. Scott. 202 Lib.

Elective for Arts and Science Juniors and Mechanic Arts Seniors.

3 Rec. per week. 2d S.

7. Political and Constitutional History of the United States since 1860. Prof. Scott. 202 Lib.

Elective for Arts and Science Seniors.

Prerequisite—History 6. *3 Rec. per week. 1st S.*

HOME ECONOMICS.

MISS KNOWLTON, MISS REINER, MISS LIVINGSTON.

1. Personal Hygiene. Miss Knowlton. 105 T.H.

A short study of the laws of health; the means of improving the physical and mental efficiency of the body; individual responsibility for race progress. Required of all women Freshmen.

1 Rec. per week. 1st S.

2. The House. Miss Reiner. 105 T.H.

Its location, drainage. Outline house-plans. Wall and floor finishes. The plumbing, heating, lighting, and ventilation of the house. Labor-saving devices. Cleaning processes and care of furniture. Social forms and usages. For Home Economics Freshmen.

Prerequisite—Drawing 67.

Parallel—Drawing 68. *2 Rec. per week. 2d S.*

3. Elementary Clothing. Miss Livingston. 105 T.H.

The fundamental stitches used in the making of household linens and undergarments. Elementary drafting, cutting and plain hand and machine sewing, with application to useful made-at-home garments. For Home Economics Freshmen. *1 Lab. per week. 1st S.*

4. Elementary Clothing, Continued. Miss Livingston. 105 T.H.

Elementary drafting continued and adaptation of patterns; cutting, fitting and finishing simple undergarments. Knitting, crocheting, and simple embroidery; darning and mending. Special attention to costs as compared with ready-to-wear garments. Students provide all material subject to the approval of the instructor. For Home Economics Freshmen. *1 Lab. per week. 2d S.*

5. Home Economics in History. Miss Reiner. 105 T.H.

This subject is intended to trace the historical aspects of the different phases of Home Economics, with especial emphasis on the history of cookery. Open to Juniors and Senior Home Economics students, and to other Junior and Senior students by special permission.

2 Rec. per week. 1st S.

6. Textiles. Miss Livingston. 105 T.H.

The textile fibers: their sources, production and uses; study of their physical and chemical properties. Examination of the fibers and weaves of woven fabrics. Judging of textile fabrics in regard to durability, cost and suitability for household or for personal purposes. Laundering and cleaning fabrics. Expense for trips and supplies about $1.50.

Prerequisite—Chemistry 56. 1 Rec., 1 Lab. per week. 2d S.

7. Foods, and Principles of Cooking.

Miss Reiner, Miss Livingston. 105 T.H.

Composition and nutritive value of food-stuffs and of foods. Effects of heat and cold upon food-stuffs; food preservation and storage. Leavening agents. Laboratory practice in the principles of cooking. The cost and nutritive value of the foods prepared. Comparative economy of foods. For Home Economics Sophomores.

Prerequisites—Chemistry 56, Home Economics 3 or equivalent, high school Physics, or equivalent. 2 Rec., 2 Lab. per week. 1st S.

8. Foods, and Principles of Cooking, Continued.

Miss Reiner. 105 T.H.

Preparation and service of meals; cost per person. Entertainment of guests. For Home Economics Sophomores.

Prerequisite—Home Economics 7. 2 Rec., 2 Lab. per week. 2d S.

10. Draping, Drafting and Elementary Dressmaking.

Miss Livingston. 105 T.H.

Practice given in drafting, cutting, fitting and designing of patterns. Drafting of a tight-fitting lining and draping of original and copied designs in cheese cloth and other suitable materials. Students provide all materials. Home Economics Juniors.

Prerequisites—Home Economics 3, 4 and 6, Drawing 69 and 70.

2 Lab. per week. 2d S.

11. Principles of Human Nutrition. Miss Knowlton. 105 T.H.

Composition of the body; its relation to the physical universe. The composition, digestion, absorption, assimilation and oxidation of food-stuffs. The physiological fuel value of food-stuffs. Methods of investigation employed in the study of human nutrition. The food

requirements of the body as influenced by activity, size, age, sex. Problems throughout the semester. It is hoped that a trip to Boston can be included. Cost about $5. For Home Economics Juniors.

Prerequisites—Home Economics 8, Chemistry 57, Zoölogy 57.

3 Rec. per week. 1st S.

12. Nutrition and Dietetics. Miss Knowlton. 105 T.H.

Continuation of Home Economics 11. Problems in dietary calculations. Comparative physiological fuel values of foods. Application of the principles of human nutrition in the adaptation of diet to varying physiological, social and economic conditions. For Home Economics Juniors.

Prerequisite—Home Economics 11. *2 Rec., 1 Lab. per week. 2d S.*

13. House Decoration. Miss Reiner. 105 T.H.

Applications of theory of color, and of design in house decoration. Selection of house furnishings; study of values; estimation of costs, and comparisons of sanitary and artistic furnishings. For Home Economics Juniors.

Prerequisites—Drawing 69, 70, Home Economics 2, 6.

2 Rec. per week. 1st S.

15. Dressmaking. Miss Livingston. 105 T.H.

The course includes the making of a silk shirt waist, a wool skirt, and a lingerie dress. Discussion and application to clothing of the theory of color and design. Students provide all material subject to the approval of the instructor.

Prerequisites—Home Economics 3, 4, 6 and 10, Drawing 69 and 70.

2 Lab. per week. 1st S.

19. Household Administration. Miss Knowlton. 105 T.H.

Evolution of the home; standards of living; expenditure of the income; organization of the household. Household and personal accounts. Care of the house and family; domestic service. Home nursing. For Home Economics Seniors.

Prerequisites—Home Economics 10, 12, Economics 1, Zoölogy 58, Botany 55. *3 Rec. per week. 1st S.*

21. Senior Problems in Home Economics. Miss Knowlton. 105 T.H.

Problems may be in experimental cookery, dietetics, textiles, economics of family. Elective for Home Economics Seniors.

Prerequisites—Home Economics 12, and 10.

Parallel—Home Economics 19. *2 Rec. per week. 1st S.*

22. Seminar. Miss Knowlton. 105 T.H.

Discussion and reports on recent work in Home Economics. Required of Home Economics Seniors. *1 Lab. per week. 2d S.*

24. Teachers' Course. Miss Knowlton. 105 T.H.

Development of Home Economics. Planning of courses epecially for secondary schools; outlines of lessons and methods of presentation; selection of equipment. Visiting Home Economics classes. Elective for Home Economics Seniors.

Prerequisite—Home Economics 10, 12, 13, 19.

1 Rec., 1 Lab. per week. 2d S.

26. Foods and Nutrition. Survey Subject. Miss Knowlton. 105 T.H.

Open to any Seniors (other than Home Economics) in the college who desire a general knowledge of foods and nutrition. Lectures will include a discussion of foods, food preparation, and human nutrition. Elective for all divisions. *2 Rec. per week. 2d S.*

HORTICULTURE.

PROF. GOURLEY, ASSOC. PROF. WOLFF, ASST. PROF. SCHERRER, MR. MACFARLANE.

52. Vegetable Gardening. Asst. Prof. Scherrer. 202 M.H.

This subject is designed to give a working knowledge of the various phases of vegetable production. It includes a study of garden soils, germination and planting of seeds, selection of varieties with reference to the conditions of the state, construction and management of hot beds and cold frames, fertilizing, irrigation, packing and marketing of vegetables. For Agricultural Sophomores.

1 Rec., 1 Lab. per week. 2d S.

53. Greenhouse Construction and Management.

Asst. Prof. Scherrer. 202 M.H.

This subject aims to familiarize the student with modern methods of greenhouse work and the more important plants grown under glass. Sorts, varieties, culture, marketing, and enemies of greenhouse plants are studied. Each student is required to do practical work in propagating, potting, watering, and ventilating. A study is made of the history and development of different types of greenhouses, including methods of heating and general management. Required in Horticultural Course, Junior year. Elective in other Agricultural Courses.

1 Lec., 1 Rec., 1 Lab. per week. 1st S.

54. Practical Pomology. Assoc. Prof. Wolff. 202 M.H.

A study of the fundamental problems of fruit growing, such as location, choice of site, kind and adaptability of soil for fruit growing, soil management, planting of orchards, pruning, sprays and spraying, thinning, harvesting and marketing. For Agricultural Sophomores.

2 Rec., 1 Lab. per week. 2d S.

55. Systematic Pomology and Commercial Orcharding.
Prof. Gourley. 202 M.H.

The first eight weeks of the semester are devoted to a study of the leading varieties of fruits and their adaptations, with special reference to New England conditions. During the remainder of the semester this subject deals with the management of commercial orchards, problems of marketing, packing, transportation and coöperation. Special study is given to the experimental data on maintaining soil fertility in the orchard and on other fundamental factors in orchard management. In the laboratory special instruction is given to the packing of apples for market and judging fruit. Required in Horticultural Course, Senior year. *3 Rec., 1 Lab. per week. 1st S.*

56. Landscape Gardening. Asst. Prof. Scherrer. 202 M.H.

A study of the principles involved in ornamental and landscape gardening. Special attention is given to the beautifying of home surroundings. Laboratory work consists in landscape design and practice in laying out and planting home and public grounds. Required in Horticultural Course, Junior year. Elective in other Agricultural Courses.
1 Lec., 1 Rec., 1 Lab. per week. 2d S.

58. Nursery Management. Assoc. Prof. Wolff. 202 M.H.

A study of the methods of propagation and the care of trees, shrubs and perennial plants in the nursery. Lectures, reference readings and practice. Required in Horticultural Course, Junior year. Elective in other Agricultural Courses. *2 Rec., 1 Lab. per week. 2d S.*

60. Floriculture. Mr. Macfarlane. 202 M.H.

A special study of the classification, history and development of the flowers and plants grown commercially and about the home, together with instruction and practice in their propagation and culture. Required in Horticultural Course, Junior year. Elective for others.
Prerequisites—Botany 51 and 52. *1 Rec., 1 Lab. per week. 2d S.*

62. Horticultural Seminar. Prof. Gourley. 202 M.H.

A review of the important horticultural literature and methods of investigational work. Required in Horticultural Course, Senior year. Elective in other Agricultural Courses.
One seminar meeting per week. 2d S.

64. Evolution and Improvement of Plants. Prof. Gourley. 202 M.H.

The applications of the principles of evolution to the improvement of plants. Variation, selection and heredity as applied to the problems of plant breeding in agricultural practice. Required in Horticultural and General Agricultural Courses, Senior year. Elective in other Agricultural Courses.
Prerequisites—Botany 51 and 52. *2 Rec. per week. 2d S.*

65. Advanced Horticulture. Prof. Gourley. 202 M.H.

Special work in horticulture. May be taken by special arrangement with the head of the department. Prerequisites will depend on the work taken. Elective for Horticultural and General Agricultural Seniors.

Two to five exercises per week. Time to be arranged. 1st S.

66. Advanced Horticulture. Prof. Gourley. 202 M.H.

A continuation of Horticulture 65. Special arrangement must be made with the head of the department for this work. Elective for Horticultural and General Agricultural Seniors. Time and credit to be arranged.

Two to five exercises per week. 2d S.

68. Vegetable Forcing. Asst. Prof. Scherrer. 202 M.H.

A subject dealing with a study of special vegetables as grown under glass. Emphasis is placed upon the commercial phases of the work, including varieties, culture, style of packages, and marketing. Each student is required to grow crops from seeding to maturity. In addition, a study of vegetable classification is given. For Horticultural Juniors. Elective in other Agricultural Courses. *1 Lec., 2 Lab. per week. 2d S.*

LATIN.

PROF. WHORISKEY, MR. CULVER.

1. Livy (Book I). Mr. Culver. 102 T.H.

Elective for Arts and Science students who have offered Advanced Latin for entrance. *3 Rec. per week. 1st S.*

2. Horace (Odes and Epodes). Mr. Culver. 102 T.H.

Prerequisite—Latin 1. *3 Rec. per week. 2d S.*

MATHEMATICS.

PROF. PETTEE, ASSOC. PROF. MOORE, ASSOC. PROF. STECK, MR. GARABEDIAN.

***51a. Algebra and Trigonometry.**

I. Assoc. Prof. Moore. D.H.
II. Assoc. Prof. Steck. D.H.
III. Mr. Garabedian. D.H.

The first part of the semester is devoted to a brief review of fundamental principles, a more advanced presentation of linear and quadratic equations, followed by an introduction to determinants, variation and logarithms. The remainder of the semester is given to plane trigonometry. For Agricultural and Mechanic Arts Freshmen. Elective for Arts and Science Freshmen. *4 Rec. per week. 1st S.*

* Arts and Science students who intend to take up the study of Analytic Geometry should elect Mathematics 51b and not Mathematics 51a.

***51b. Trigonometry and Analytic Geometry.**

I. Assoc. Prof. Moore. D.H.
II. Assoc. Prof. Steck. D.H.
III. Mr. Garabedian. D.H.

A portion of the semester is devoted to algebra and plane trigonometry. During the remainder of the semester the student begins a study of the elements of plane analytic geometry. For Engineering Freshmen. Elective for Arts and Science Freshmen. *4 Rec. per week. 1st S.*

52. Analytic Geometry.

I. Assoc. Prof. Moore. D.H.
II. Assoc. Prof. Steck. D.H.
III. Mr. Garabedian. D.H.

A continuation of Mathematics 51b, presenting the elements of both plane and solid analytic geometry, Cartesian and polar coördinates, the straight line, circle, and the conic sections; special emphasis placed on methods of analysis as illustrated by loci problems. For Engineering Freshmen. Elective for Arts and Science Freshmen.

Prerequisite—Mathematics 51b. *3 Rec. per week. 2d S.*

53. Solid Geometry.

I. Assoc. Prof. Moore. D.H.
II. Assoc. Prof. Steck. D.H.
III. Mr. Garabedian. D.H.

The elements of solid and spherical geometry including original demonstrations and the solution of numerical problems. For Engineering and Mechanic Arts Freshmen. Elective for Agricultural and Arts and Science Freshmen. *2 Rec. per week. 1st S.*

54. Surveying.

I. Assoc. Prof. Moore. D.H.
II. Assoc. Prof. Steck. D.H.
III. Mr. Garabedian. D.H.

Recitations and field work surveying with chain, compass, transit, sextant and plane table; adjustment, care and proper method of using these instruments; the methods of determining areas; levelling for profiles and contours; computing from field notes taken in connection with the work. For Agricultural and Mechanic Arts Freshmen. Elective for Arts and Science Freshmen.

Prerequisite—Mathematics 51a or 51b.

Two Rec. per week for the first half of the semester. Two field exercises per week for the remainder of the semester. *2d S.*

55. Calculus.

I. Assoc. Prof. Moore. D.H.
II. Assoc. Prof. Steck. D.H.

A continuation of Mathematics 66 with special applications to engineering problems. The simple methods of integration. For Engineering Sophomores. Elective for Arts and Science Sophomores.

Prerequisite—Mathematics 52. *3 Rec. per week. 1st S.*

* Arts and Science students who intend to take up the study of Analytic Geometry should elect Mathematics 51b and not Mathematics 51a.

56. Calculus. { I. Assoc. Prof. Moore. D.H. / II. Assoc. Prof. Steck. D.H.

A continuation of Mathematics 55, including the determination of length, area, volume, mass, mean density, center of gravity, etc., by the methods of the integral calculus.

Prerequisite—Mathematics 55. *3 Rec. per week. 2d S.*

57. Differential Equations. Assoc. Prof. Steck. D.H.

Devoted to the study of ordinary differential equations, especially those of the first and second orders, with applications to geometry, physics, and mechanics. Offered in alternate years. Given in 1917–1918.

Prerequisite—Mathematics 56. *2 Rec. per week. 1st S.*

58. Advanced Calculus. Assoc. Prof. Steck. D.H.

A study of some of the more advanced topics of differential and integral calculus with applications to the solution of problems. Elective for Juniors and Seniors who have completed Mathematics 56. Offered in alternate years. Given in 1918–1919. *2 Rec. per week. 2d S.*

59. Theory of Equations. Assoc. Prof. Moore. D.H.

Comprises the general properties of polynomials and equations, the relation between the roots and coefficients with applications to the symmetric functions of the roots, the transformation of equations, the solution of cubic, biquadratic, binominal, and reciprocal equations, the properties of the derived functions, the limits and the separation of the roots, and the solution of higher numerical equations. Offered in alternate years. Given in 1918–1919.

Prerequisite—Mathematics 56. *2 Rec. per week. 1st S.*

60. History of Mathematical Science. Assoc. Prof. Moore. D.H.

Designed to acquaint those who intend to teach mathematics with the development of algebra, geometry, trigonometry, analysis and calculus. Lectures, assigned readings and recitations. Offered in alternate years. Given in 1917–1918.

Prerequisite—Mathematics 56. *2 Rec. per week. 2d S.*

64. Theory and Practice of Surveying. Assoc. Prof. Moore. D.H.

Arranged for Seniors in the Mechanical and Electrical Engineering Courses, in which a study is made of the engineer's transit, wye-level, and compass; the theory of their adjustment and their use.

The field work includes: first, preliminary practice until a reasonable degree of facility and precision is attained by each student in doing well a piece of work such as; differential levelling, or a land survey

NOTE.—Students desiring to take Mathematics 57, 58, 59, or 60 should consult with the instructor before registering.

involving the ordinary measurements of lines and angles; second, a topographic survey of a tract of land for a contour map; computation of earthwork "cuts and fills"; survey for highway line; locating survey of a proposed railway line, including practice in staking out simple curves; solar observations with the engineer's transit for azimuth.

2 Rec., 1 field exercise per week. 2d S.

66. Differential Calculus. { I. Assoc. Prof. Moore. D.H. / II. Assoc. Prof. Steck. D.H. / III. Mr. Garabedian. D.H.

The elements of the differential calculus. The differentiation of algebraic and transcendental functions. For Engineering Freshmen. Elective for Arts and Science Freshmen.

Prerequisite—Math. 51b. Mathematics 52 (Analytic Geometry) must be taken as a parallel subject.

3 Rec. per week. 2d S.

MECHANICAL ENGINEERING.

PROF. PORTER, ASST. PROF. SEVERNS, MR. EMERSON.

52. Mechanics of Engineering. Prof. Porter. 2–45 D.H.

Principles of pure mechanics as applied to engineering structure involving composition forces, analytics and graphics. Conditions of equilibrium, center of gravity, moment of inertia, strength of materials, riveted joints. For Electrical and Mechanical Sophomores.

Mathematics 56 required as parallel course. 3 Rec. per week. 2d S.

58. Thermodynamics. Prof. Porter. 2–45 D.H.

A study of the laws of thermodynamics and the thermodynamic properties of steam and gases. Their application to steam, gasoline engines, theory of refrigeration, and injectors. Required for Electrical Engineering and Mechanical Engineering Juniors and Chemical Engineering Seniors.

Prerequisite—Mathematics 56. 3 Rec. per week. 2d S.

59. Mechanical Laboratory.

Prof. Porter, Asst. Prof. Severns, Mr. Emerson. 0–24 D.H.

Physical tests of iron, steel, concrete, timber, calibration of instruments used in testing and finding the efficiency of simple machines. For Electrical Engineering and Mechanical Engineering Juniors. Fee, $1.50.

Prerequisite—Mechanical Engineering 52.

1 Rec., 1 Lab. per week. 1st S.

60. Mechanical Laboratory.
Prof. Porter, Asst. Prof. Severns, Mr. Emerson. 0–24 D.H.

Analysis of coal, oil, gas, setting of valves, testing of water meters and hydraulic meters, calibration of a wier notch. Electrical Engineering and Mechanical Engineering Juniors. Continuation of Mechanical Engineering 59. Fee, $1.50. *1 Rec., 1 Lab. per week. 2d S.*

62. Hydraulics. Asst. Prof. Severns. 2–45 D.H.

The mechanics of liquids, principle of fluid pressures, stability of structures, flow of liquids, methods and measurement of streams, and quantities of water by means of floats, wiers and meters and the fundamental principles of hydraulic machinery. For Electrical Engineering and Mechanical Engineering Juniors.

Prerequisite—Mechanical Engineering 69. 3 Rec. per week. 2d S.

63. Materials of Construction. Asst. Prof. Severns. 2–45 D.H.

A study of the manufacture, properties and uses of iron, steel, brass, bronze, wood, brick, cement and concrete. For Electrical Engineering and Mechanical Engineering Juniors and Chemical Engineering Seniors.

Prerequisite—Mechanical Engineering 52. 3 Rec. per week. 1st S.

64. Machine Design. Asst. Prof. Severns. 2–48 D.H.

Study of the elements of machines, design of fastening joints, gearing, belting, lubrication, machine frames and attachments. The work in the drafting room consists of the actual design of cranes, punches and machine parts. For Electrical Engineering and Mechanical Engineering Juniors.

Prerequisite—Mechanical Engineering 69.
2 Rec., 2 Lab. per week. 2d S.

65. Mechanical Engineering Laboratory.
Prof. Porter, Asst. Prof. Severns, Mr. Emerson. 0–24 D.H.

Tests of gasoline and steam engine pumps, air compressors, boilers and a study of their operation. Continuation of Mechanical Engineering 60. For Electrical Engineering and Mechanical Engineering Seniors. Fee, $1.50. *1 Rec., 1 Lab. per week. 1st S.*

66. Mechanical Laboratory.
Prof. Porter, Asst. Prof. Severns, Mr. Emerson. 0–24 D.H.

A continuation of Mechanical Engineering 65. For Mechanical Engineering Seniors. Fee, $2.00. *1 Rec., 2 Lab. per week. 2d S.*

68. Advanced Design. Prof. Porter. 2–40 D.H.

Design of steam boiler plants and the lay-out of piping for the said plant. Selection of types of boilers and equipment for power plants. The lay-out and equipment for factories. For Mechanical Engineering Seniors.

Prerequisite—Mechanical Engineering 73. 3 Lab. per week. 2d S.

69. Mechanics of Engineering. Prof. Porter. 2–45 D.H.

Principles of mechanics as applied to design of beams, columns, plain and reinforced concrete construction, principles of dynamics as applied to the design of fly wheels and moving parts of machines. For Electrical Engineering and Mechanical Engineering Juniors.

Prerequisite—Mechanical Engineering 52. 5 Rec. per week. 1st S.

72. Manual Training. Prof. Porter. 2–45 D.H.

A study of the purpose of manual training work, of the proper methods of teaching, and of the equipment of manual training schools. For Mechanic Arts Seniors. *1 Rec. 2d S.*

73. Power Plant Engineering. Prof. Porter. 2–45 D.H.

A study of fuels, theory of combustion, various types of boiler engines and prime movers, full equipment of power plants, and the design of chimneys and cooling towers for Electrical Engineering and Mechanical Engineering Seniors.

Prerequisite—Mechanical Engineering 58. 4 Rec. per week. 1st S.

74. Kinematics of Machinery. Mr. Emerson. 2–45 D.H.

Study of mechanisms, location of virtual centers, construction of velocity and acceleration diagrams, design of gears and linkages. For Electrical Engineering and Mechanical Engineering Sophomores.

Prerequisite—Drawing 57. 2 Lab. per week. 2d S.

77. Valve Gears and Boiler Design. Asst. Prof. Severns. 2–40 D.H.

A study of various types of valves used in steam engines, the uses of Bilgram and Zeuner valve diagrams, the design of a Corliss valve gear, and the complete design of return tubular boilers. Elective for Electrical Engineering and Mechanical Engineering Juniors.

Prerequisite—Mechanical Engineering 52. 2 Lab. per week. 1st S.

77a. Problems. Prof. Porter. 2–40 D.H.

Problems in mechanical engineering dealing with practical work.

1 Rec. per week. 1st S.

78. Industrial Engineering. Prof. Porter. 2–45 D.H.

A study of factory conditions, safety devices, sanitation, lighting, ventilation, fire prevention, methods of keeping costs and methods of supervision of factories. For Mechanical Engineering Seniors.

Prerequisite—Mechanical Engineering 73. 3 Rec. per week. 2d S.

79. Heating and Ventilation. Prof. Porter. 2–45 D.H.

Computation of air requirements, heat losses, design of heating and ventilation systems, location of apparatus, lay-out of piping, low pressure district heating systems. For Mechanical Engineering Seniors.

Prerequisite—Mechanical Engineering 64.

1 Rec., 2 Lab. per week. 1st S.

METEOROLOGY.

PROF. PETTEE.

1. Meteorology. Prof. Pettee. 206 T.H.

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes and methods of prediction of atmospheric changes. For Agricultural Seniors. Elective for Arts and Science students.

Prerequisite—Elementary Physics. *2 Rec. per week. 1st S.*

MILITARY ART.

CAPT. HUNT.

Unless excused by proper authority, all male students are required to complete two years' satisfactory work in military art.

Course of Training for Infantry Units of the Senior Division.

1. Military Art. Capt. Hunt. 105 Armory.

Three hours a week.

(*a*) Practical. Weight 10.

Physical drill (Manual of Physical Training—Koehler); Infantry drill (U. S. Infantry Drill Regulations), to include the School of the Soldier, Squad and Company, close and extended order. Preliminary instruction sighting position and aiming drills, gallery practice, nomenclature and care of rifle and equipment.

(*b*) Theoretical. Weight 4.

Theory of target practice, individual and collective (use of landscape targets made up by U. S. Military Disciplinary Barracks, Fort Leavenworth, Kans.); military organization (Tables of Organization); map reading; service of security; personal hygiene.

2 credit hours. 1 Rec., Balance Drill. 1st S.

2. Military Art. Capt. Hunt. 105 Armory.

Three hours a week.

(*a*) Practical. Weight 10.

Physical drill (Manual of Physical Training—Koehler); Infantry drill (U. S. Infantry Drill Regulations), to include School of Battalion, special attention devoted to fire direction and control; ceremonies; manuals (Part V, Infantry Drill Regulations); bayonet combat; intrenchments (584–595, Infantry Drill Regulations); first-aid instruction; range and gallery practice.

(*b*) Theoretical. Weight 4.

Lectures, general military policy as shown by military history of United States and military obligations of citizenship; service of information; combat (to be illustrated by small tactical exercises); United States Infantry Drill Regulations, to include School of Company; camp sanitation for small commands.

2 credit hours. 1 Rec., Balance Drill. 2d S.

3. Military Art. Capt. Hunt. 105 Armory.

Three hours a week.

(*a*) Practical. Weight 10.

The same as course 2 (*a*). Combat firing, if practicable, but collective firing should be attempted in indoor ranges by devices now in vogue at United States Disciplinary Barracks.

(*b*) Theoretical. Weight 4.

United States Infantry Drill Regulations, to include School of Battalion and Combat (350–622); Small-Arms Firing Regulations; lectures as in (*b*) course 2; map reading; camp sanitation and camping expedients.

2 credit hours. 1 Rec., Balance Drill. 1st S.

4. Military Art. Capt. Hunt. 105 Armory.

Three hours a week.

(*a*) Practical. Weight 10.

The same as course 2 (*a*); signaling; semaphore and flag; first-aid. Work with sand table by constructing to scale intrenchments, field works, obstacles, bridges, etc. Comparison of ground forms (constructed to scale) with terrain as represented on map; range practice.

(*b*) Theoretical. Weight 4.

Lectures, military history (recent); service of information and security (illustrated by small tactical problems in patrolling, advance guards, rear guards, flank guards, trench and mine warfare, orders, messages, and camping expedients); marches and camps (Field Service Regulations and Infantry Drill Regulations).

2 credit hours. 1 Rec., Balance Drill. 2d S.

5. Military Art. Capt. Hunt. 105 Armory.

Five hours a week.

(*a*) Practical. Weight 13.

Duties consistent with rank as cadet officers or non-commissioned officers in connection with the practical work and exercises laid down for the unit or units. Military sketching.

(*b*) Theoretical. Weight 11.

Minor tactics; field orders (studies in minor tactics, United States School of the Line); map maneuvers. Weight 8.

Company administration, general principles (papers and returns). Weight 1.

Military history. Weight 2.

3 credit hours. 2 Rec., Balance Drill. 1st S.

6. Military Art. Capt. Hunt. 105 Armory.

Five hours a week.

(*a*) Practical. Weight 13.

Same as (*a*) course 5. Military sketching.

(*b*) Theoretical. Weight 11.

Minor tactics (continued); map maneuvers. Weight 8.

Elements of international law. Weight 2.

Property accountability; method of obtaining supplies and equipment (Army Regulations). Weight 1.

3 credit hours, 2 Rec., Balance Drill. 2d S.

7. Military Art. Capt. Hunt. 105 Armory.

Five hours a week.

(*a*) Practical. Weight 13.

Duties consistent with rank as cadet officers or noncommissioned officers in connection with the practical work and exercises scheduled for the unit or units. Military sketching.

(*b*) Theoretical. Weight 11.

Tactical problems, small forces, all arms combined; map maneuvers; court-martial proceedings (Manual for Courts-martial).

International relations of America from discovery to present day; gradual growth of principles of international law embodied in American diplomacy, legislation, and treaties.

Lectures: Psychology of war and kindred subjects.

General principles of strategy only, planned to show the intimate relationship between the statesman and the soldier (not to exceed 5 lectures).

3 credit hours, 2 Rec., Balance Drill. 1st S.

8. Military Art. Capt. Hunt. 105 Armory.

Five hours a week.

(*a*) Practical. Weight 13.

Same as course 7 (*a*).

(*b*) Theoretical. Weight 11.

Tactical problems (continued); map maneuvers. Rifle in war.

Lectures on military history and policy.

3 credit hours, 2 Rec., Balance Drill. 2d S.

It is presumed that each member of the Reserve Officers' Training Corps during his academic course has taken one course or equivalent credit in either French, or German, or Spanish.

Special courses can no doubt be arranged at each institution so that specialists will be developed for duties other than those prescribed for reserve officers of the mobile arms.

MINERALOGY.

PROF. JAMES.

54. Mineralogy. Prof. James. 204 C.H.

A short subject in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value. For Chemical Sophomores. Elective for Agricultural and Arts and Science Juniors.

Prerequisites—Chemistry 51 and 52. *2 Lab. per week. 2d S.*

PHYSICAL CULTURE.

MISS ROLLINS.

Unless excused by proper authority, all women students are required to complete three years' work in physical culture. One hour credit is given for each subject completed.

1. Physical Culture. Miss Rollins. 303 T.H.

For Freshmen. Corrective gymnastics. *Two exercises per week. 1st S.*

2. Physical Culture. Miss Rollins. 303 T. H.

For Freshmen. Gymnasium practice and aesthetic games. Folk dancing. *Two exercises per week. 2d S.*

3. Physical Culture. Miss Rollins. 303 T.H.

For Sophomores. Practical gymnastics.

Two exercises per week. 1st S.

4. Physical Culture. Miss Rollins. 303 T.H.

Continuation of Physical Culture 3, folk dancing and aesthetic games.

Two exercises per week. 2d S.

5. Physical Culture. Miss Rollins. 303 T.H.

For Juniors. Advanced gymnastics, aesthetic, folk and interpretative dancing. *Two exercises per week. 1st S.*

6. Physical Culture. Miss Rollins. 303 T.H.

For Juniors. Continuation of Physical Culture 5.

Two exercises per week. 2d S.

7. Physical Culture. Miss Rollins. 303 T.H.

For Seniors. Classic dancing and continuation of Junior work.

Two exercises per week. 1st S.

8. Physical Culture. Miss Rollins. 303 T.H.

For Seniors. Continuation of Physical Culture 7.

Two exercises per week. 2d S.

PHYSICS.

PROF. SUYDAM, MR. MORAN, MR. EMERSON.

51. Mechanics and Heat. Prof. Suydam. 2–46 D.H.

Lectures, illustrated by experiments, with notebooks to be handed in at intervals and occasional written quizzes. As little mathematics is used as is consistent with the proper interpretation of the lecture experiments. For Agricultural and Mechanic Arts Sophomores. Elective for Arts and Science students.

2 Lec. per week. 1st S.

52. Magnetism and Electricity. Prof. Suydam. 2–46 D.H.

A continuation of Physics 51. *2 Lec. per week. 2d S.*

53. Physical Theory and Practice. Mr. Moran. 1–35, 1–37 D.H.

Recitations on a standard textbook, with laboratory work, supplemented by lectures.

Students electing this subject are advised to take analytic geometry and calculus; the lack of them will prove a hindrance. For Mechanical and Electrical Sophomores; elective for Arts and Science students.

2 Lec., 2 Rec., 2 Lab. per week. 1st S.

54. Physical Theory and Practice. Mr. Moran. 1–35, 1–37 D.H.

A continuation of Physics 53.

Prerequisite—Physics 53. *2 Lec., 2 Rec., 2 Lab. per week. 2d S.*

55. Mathematical Physics and Practice.

Prof. Suydam. 1–35, 2–46 D.H.

Similar to Physics 53, but more mathematical. For Chemical Juniors. Elective for Arts and Science students.

Prerequisites—Mathematics 52, 55 and 56.

2 Lec., 2 Rec., 2 Lab. per week. 1st S.

NOTE.—The following fees or deposits are required at the beginning of a year or part of a year: for notes, not returnable, Physics 51, 52—75c.; Physics 59—40c.; for notes and damage, balance returnable at end of year, Physics 57, 58, 59, 82—$1.00; Physics 53, 54, 55, 56—$2.00.

NOTE.—Students desiring to be recommended as High School Physics teachers must pass with grade of 80 in Physics 51, 52, 55, 56, or with grade of 85 in Physics 51, 52, 53, 54.

56. Mathematical Physics and Practice.
Prof. Suydam. 1–35, 2–46 D.H.

A continuation of Physics 55.
Prerequisite—Physics 55. *2 Lec., 2 Rec., 2 Lab. per week. 2d S.*

57. Household Physics. Prof. Suydam. 1–35, 2–46 D.H.

A general treatment of the physical principles underlying the operation of household appliances. For Home Economics Sophomores entering without high school physics. *2 Lec., 1 Lab. per week. 1st S.*

58. Elementary Physics and Practice. Mr. Moran. 1–35, 2–46 D.H.

A review of physics for students who do not desire mathematical work, but need a study of principles, with laboratory applications. Mathematics 51 and Physics 51 and 52 must precede or accompany this. For Mechanic Arts Sophomores. Elective for Arts and Science students. *2 Rec., 1 Lab. per week. 2d S.*

59. Elementary Optics and Photographic Instruments.
Mr. Moran. 1–35, 2–46 D.H.

Designed for students who wish to use optical and photographic apparatus intelligently. Lectures on fundamental principles of light, images, color and photometry, and on practical visual, projection and photographic lenses and other apparatus; with experimental illustrations. (Not devoted to photographic chemistry, developers, etc.) Stencil notes will be used. Elective for all students, except Freshmen and Two Year students in the first year.
2 Lab., 2 Lec. per week. 1st S.

POLITICAL SCIENCE.

PROF. SCOTT.

2. Laws of Business. Prof. Scott. 202 Lib.

Recitations supplemented by the discussion of cases. Elective for Arts and Science Sophomores, Mechanic Arts Juniors and Seniors and Agricultural Seniors. *3 Rec. per week. 2d S.*

3. American Constitutional Law. Prof. Scott. 202 Lib.

Recitations, supplemented by a study of the decisions of the United States Supreme Court. Special attention is given to the connection between American constitutions and American political history. Elective for Arts and Science and Mechanic Arts Juniors and Seniors and Agricultural Seniors. *3 Rec. per week. 1st S.*

POULTRY HUSBANDRY.

PROF. MITCHELL.

Poultry 2. Farm Poultry. Prof. Mitchell. 202 M.H.

Subject treats general considerations, houses and appliances, types of poultry, fattening and marketing, caponizing, principles of breeding, feeding, incubation and brooding, sanitation, diseases and parasites, and poultry management. For Agricultural Sophomores.

2 Lec., 1 Lab. per week. 2d S.

Poultry 3. Poultry Judging. Prof. Mitchell. 202 M.H.

Subject includes a study of the origin and history of breeds and varieties. A discussion of poultry organizations and poultry shows. Elective. *2 Lec., 1 Lab. per week. 1st S.*

Poultry 6. Home Poultry. Prof. Mitchell. 202 M.H.

A study of poultry with reference to the home. A discussion of factors bearing on production of eggs and table birds. A study of the grades and quality of eggs and poultry. Preparation of fowl for roasting, frying, etc. Elective for Home Economics and Arts and Science Juniors and Seniors. *2 Lec. per week. 2d S.*

Poultry 61. Prof. Mitchell. 202 M.H.

In this subject are discussed the location of a poultry farm, poultry buildings, poultry house construction, types and breeds of poultry, caponizing, killing and dressing, and fattening. Elective for Agricultural Seniors. *2 Lec., 1 Lab. per week. 1st S.*

Poultry 62. Prof. Mitchell. 202 M.H.

This covers the subjects of poultry foods and feeding, incubation, brooding, markets, poultry diseases, and poultry farm problems. Elective for Agricultural Seniors. *2 Lec., 1 Lab. per week. 2d S.*

PSYCHOLOGY.

PROF. SIMMERS.

52. Introduction to Psychology. Prof. Simmers. 211 T.H.

A rapid survey of the physiological bases of behavior, is followed by a more detailed study of the fundamental facts of mind or human behavior, chiefly as exhibited by the normal individual working under normal conditions. The principles of the science are related as closely as possible to the concrete experiences of the student.

Required of Manual Arts Sophomores and Agricultural Juniors. Elective for all other students. Must be taken by those who wish to elect other subjects in psychology. Lectures, assigned readings and discussion. Sophomore subject. *3 Rec. per week. 2d S.*

53. Psychology of the Adolescent. Prof. Simmers. 211 T.H.

A study is made of the growth and development of the physical, psychic, intellectual, moral, social and religious nature of the adolescent boy and girl. The aim is to develop in the students a clearer insight into the nature of youth, particularly those of high school age, so they can be dealt with in a more sympathetic and helpful manner. Required of Manual Arts and Agricultural Seniors. Elective for all other students. Lectures, assigned readings and discussion. Junior subject.

Prerequisite—Psychology 52. *3 Rec. per week. 1st S.*

SHOP WORK.

PROF. PORTER, MR. BATCHELDER AND MR. MCBRIDE.

51. Wood Work. Mr. Batchelder. Second Floor of Shop.

Instruction in the use and care of wood working tools, and machinery in the wood shop, exercises in making joints of various types, and pattern making for Engineering Mechanic Arts Freshmen. Elective for Arts and Science Freshmen. Fee, $1.50. *2 Lab. per week. 1st S.*

51a. Wood Work. Mr. Batchelder. Second Floor of Shop.

Instruction in the care and use of wood working tools and machinery; making of simple joints and bench exercises. For Chemical Freshmen. Fee, $1.00. *1 Lab. per week. 1st S.*

52. Wood Work. Mr. Batchelder. Second Floor of Shop.

Continuation of Shop 51. Is arranged to teach students taking Mechanic Arts Course, cabinet making, and its application to manual training. For Mechanic Arts Freshmen. Fee, $1.50.

Prerequisite—Shop 51. *2 Lab. per week. 2d S.*

54. Wood Work. Mr. Batchelder. Second Floor of Shop.

Instruction in the care and use of tools in the carpenter shop, making of simple joints and frames, saw filing and the making of handles, single trees and other implements of wood used upon the farm. For Agricultural Juniors. Fee, $1.50. *2 Lab. per week. 2d S.*

55. Forging. Mr. McBride. First Floor of Shop.

This is a study of the forging of iron and steel and is designed to teach the operations of drawing, upsetting, welding, twisting, splitting and punching. A study is made of the construction, care and management of the forge and instruction given in tempering, case hardening and annealing. For Agricultural Juniors. Fee, $1.00.

1 Lab. per week. 1st S.

57. Forging. Mr. McBride. First Floor of Shop.

This is a study of the forging of iron and steel and is designed to teach the operation of drawing, upsetting, welding, twisting, splitting, and punching. A study is made of the construction, care and management of the forge and instruction given in tempering, case hardening and annealing. For Electrical and Mechanical Sophomores. Fee, $1.50

2 Lab. per week. 1st S.

59. Wood Work. Mr. Batchelder. Second Floor of Shop.

The use and care of wood turning tools and machinery, exercises upon wood turning lathes and cabinet making. For Mechanic Arts Sophomores. Fee, $2.00.

Prerequisite—Shop 52. *3 Lab. per week. 1st S.*

60. Wood Work. Mr. Batchelder. Second Floor of Shop.

Continuation of Shop 59. More complicated cabinet work and finishing same. For Mechanic Arts Sophomores. Fee, $2.00.

3 Lab. per week. 2d S.

62. Machine Work. Mr. McBride. First Floor of Shop.

Exercises in bench work, chipping, filing and scraping and laying out of work from drawings; a study of cutting edges and tool adjustments best suited for different metals together with a study of cutting speeds and feeds. Practice in operating the principal machine tools, such as the shaper, lathe, drill press, planer and milling machine. For Electrical and Mechanical Sophomores. Fee, $1.50.

2 Lab. per week. 2d S.

63. General Machine Work. Mr. McBride. First Floor of Shop.

A continuation of Shop 62. For Electrical and Mechanical Juniors.

2 Lab. per week. 1st S.

64. Manufacturing. Mr. McBride. First Floor of Shop.

Construction and use of jigs and special fixtures; use of limit gauges, special tools, turret and screw machinery; manufacture of some simple machine, using special appliances. Elective for Electrical and Mechanical Juniors. Fee, $1.50. *2 Lab. per week. 2d S.*

65. Wood Work. Mr. Batchelder. Second Floor of Shop.

This subject is laid out to teach students exercises that are suitable for subjects in manual training in secondary schools. For Mechanic Arts Juniors. Fee, $1.50. *2 Lab. per week. 1st S.*

66. Forge Work. Mr. McBride. First Floor of Shop.

This is a study of the forging of iron and steel and is designed to teach the operation of drawing, upsetting, welding, twisting, splitting, and punching. A study is made of the construction, care and management of the forge and instruction given in tempering, case hardening and annealing. For Mechanic Arts Juniors. Fee, $1.50.

3 Lab. per week. 2d S.

67. Manual Training Practice. Mr. Batchelder. Second Floor of Shop.

Exercises in teaching under direction of wood shop instructor. For Mechanics Arts Seniors. *2 Lab. per week. 1st S.*

68. Machine Work. Mr. McBride. First Floor of Shop.

Exercises in bench work, chipping, filing and scraping and laying out of work from drawings; a study of cutting edges and tool adjustments best suited for different metals together with a study of cutting speeds and feeds. Practice in operating the principal machine tools, such as the shaper, lathe, drill press, planer and milling machine. For Chemical Juniors. Fee, $1.50. *2 Lab. per week. 2d S.*

69. Advanced Shop Work. Mr. Batchelder. Second Floor of Shop.

Advanced pattern making and foundry practice for Mechanical Seniors. Fee, $1.50. *2 Lab. per week. 1st S.*

71. Machine Work. Mr. McBride. First Floor of Shop.

Machine work arranged to meet the needs of students taking the Mechanic Arts Course for Teachers. For Mechanic Arts Seniors. Fee, $2.00. *3 Lab. per week. 1st S.*

72. Machine Work. Mr. McBride. First Floor of Shop.

A continuation of Shop 71. Fee, $2.00. *3 Lab. per week. 2d S.*

SOCIOLOGY.

PROF. GROVES.

51. Primitive Man and Social Origins. Prof. Groves. 201 Lib.

An elementary study of life of primitive man, the beginnings of human society and the factors that condition social evolution. The subject aims to introduce the student to a field of investigation of special value to the student of the social sciences. Special attention is given to the study of primitive social control. Ethnological readings are required.

The subject includes a discussion of the following topics: Geographical basis of human society, origin and antiquity of primitive man, races, race crossing, prehistoric culture periods, primitive life conditions including food, housing, inventions, slavery, art, dress, marriage, family forms and customs, totemism, tabu, magic, medicine men, ceremonies, secret societies, clan and tribal organization.

Special attention will be given to the theories of human association. Sophomore subject. Lectures and recitations. *3 Rec. per week. 1st S.*

52. Social Pathology and Modern Philanthropy.

Prof. Groves. 201 Lib.

This subject in modern social problems covers the following ground:

A. Study of the nature, origin and proper treatment of dependent, defective and delinquent classes, including an introduction to the theories of criminal anthropology.

B. Study of contemporary social problems and movements for social betterment as reported in *The Survey*.

C. Thesis work on the part of the student based upon first-hand study of some concrete social problem.

Junior subject. Students are advised to complete Sociology 51 before electing this subject. Lectures and recitations.

3 Rec. per week. 2d S.

***53. Mental Defectives.** Prof. Groves. 201 Lib.

A sociological study of mental defectiveness with special attention to the problem of social prophylaxis. Designed for students who plan to engage in social or educational work of an administrative or institutional character or who plan to do graduate work in the field of psychology or sociology.

The subject covers the following ground:

A. The study of amentia, including a discussion of the number, causation, pathology, classification, characteristics, problem of diagnosis and prognosis and the treatment of aments.

B. The study of the constitution and function of the psychological clinic, method of classifying clinic cases, the Binet measuring scale, the sociological relations of the clinic.

C. Individual study by the student of typical cases of mental defectiveness by the case method.

D. An introduction to the literature of amentia.

Junior subject. Lectures and recitations.

Prerequisites—Psychology 52 and Sociology 51.

3 Rec. per week. 1st S.

54. Rural and Community Sociology. Prof Groves. 201 Lib.

A study of the social significance, conditions and resources of American country life with the purpose of developing community leadership The subject includes a discussion of the following:

A. Rural ethnology and sociology. Land basis of society, origin of primitive agriculture, animal and plant life as factors in human progress, modern agriculture and population, migration, immigration and city drift.

B. Rural social psychology. Imitation and city influence, suggestibility, conflict, discussion, public opinion and community pride.

*Sociology 53 and 55 are given in alternate years. Sociology 55 is offered in 1917–1918.

C. Rural social pathology. Dependents, defectives and delinquents in their relation to the country community, problem of rural police protection, moral problems of the rural community.

D. Rural progress. Survey making, communication, community advertising, associations and clubs, rural education, wider use of rural school houses, rural school gardens, community competition, fairs, recreation, the rural church and welfare work.

Senior subject. Lectures and recitations. *3 Rec. per week. 2d S.*

***55. Social Psychology.** Prof. Groves. 201 Lib.

A study of the development and the characteristics of the social mind of man.

The subject covers the following ground:

A. The study in detail of the character and operation of the instincts, sentiments and emotions of man of primary importance for his life in society.

B. The study of the operation of the modern social mind, including a discussion of suggestibility, the crowd, mob mind, fashion, conventionality, custom-imitation, social conflict, discussion, public opinion and problems of social control.

Junior subject. Lectures and recitations.

Prerequisite—Psychology 52. *3 Rec. per week. 1st S.*

†56. An Introduction to General Sociology. Prof. Groves. 201 Lib.

An advanced subject in the principles of sociology which aims to introduce the student to a systematic sociological interpretation of human association. It includes a study of the history of sociological thought, discussions of sociological principles and recent sociological literature. This subject is the most advanced offered by the department and is especially provided for those who are specializing in the social sciences. Thesis work is required.

Senior subject. Lectures and recitations.

Prerequisite—Any two subjects in sociology. *3 Rec. per week. 2d S.*

†58. Social Ethics. Prof. Groves. 201 Lib.

This subject in social ethics covers the following ground:

A. Origin and development of moral conceptions in savage society.

B. The study of representative altruistic thought of ethical significance.

C. The investigation by the seminar method of some ethical problem of importance in modern social life.

Senior subject. Lectures and recitations.

Prerequisite—Any two subjects in sociology. *3 Rec. per week. 2d S.*

* Sociology 53 and 55 are given in alternate years. Sociology 55 is offered in 1917–1918.

† Sociology 56 and 58 are given in alternate years. Sociology 56 is offered in 1917–1918.

SPANISH.

PROF. WHORISKEY, MR. CULVER, MR. RAYMOND.

1. Elementary Spanish. Mr. Culver. 102 T.H.

Elements of Spanish grammar. Reading of simple stories; conversation and dictation. Elective for Arts and Science students.

3 Rec. per week. 1st S.

2. A Continuation of Spanish 1. Mr. Culver, Mr. Raymond. 102 T.H.

Prerequisite—Spanish 1. *3 Rec. per week. 2d S.*

3. Spanish Prose. Mr. Culver. 102 T.H.

Reading and translation, conversation, composition.

Prerequisite—Spanish 2. *3 Rec. per week. 1st S.*

4. A Continuation of Spanish 3. Mr. Culver. 102 T.H.

Prerequisite—Spanish 3. *3 Rec. per week. 2d S.*

ZOÖLOGY.

PROF. JACKSON, MR. BATCHELDER, MR. BEAN.

The subjects in zoölogy are arranged in sequence as follows: Arts and Science students desiring a general scientific knowledge of the subject should elect from group A, B and D with optional elections in C. Students who do not intend to specialize in zoölogy may elect from group A or B. Those students intending to teach the subject of zoölogy or who are contemplating entering the medical profession should consult the head of the department as to the sequence of subjects. However, any subject offered may be taken by students who have completed the required prerequisites.

Group A. Systematic Zoölogy.

51. General Zoölogy.

Prof. Jackson, Mr. Batchelder, Mr. Bean. 212 T.H.

A detailed study of the fundamental principles of life; the nature and physiology of protoplasm; the structure of the cell and the processes of cell division. The structure and physiology of the tissues will be discussed and their occurrence in the different phyla of the animal kingdom. There will then follow a discussion of the different organs and systems of the body, their function and modification in the different types of animals. For Agricultural and Home Economics Freshmen. Elective for Arts and Science and Mechanic Arts Freshmen.

2 Lec., 1 Lab. per week. 1st S.

52. General Zoölogy. Prof. Jackson, Mr. Batchelder. 212 T.H.

The structure, habits, physiology and life history of the different types of animals will be discussed. The economic aspect will be emphasized so far as possible and their importance and relation to man. The laboratory work will consist of the study and dissection of type forms. For Agricultural and Home Economics Freshmen. Elective for Arts and Science and Mechanic Arts students.

Prerequisite—Zoölogy 51. *2 Lec., 1 Lab. per week. 2d S.*

53. Faunal Zoölogy (Invertebrate). Prof. Jackson. 212 T.H.

A study of the habits, life history and identification of local invertebrate animals exclusive of the insects. The study is entirely systematic and is primarily for students intending to teach zoölogy.

Prerequisites—Zoölogy 51 and 52. 1 Report, 2 Lab. per week. 1st S.

54. Faunal Zoölogy (Vertebrate). Prof. Jackson. 212 T.H.

A study of the habits, life history and identification of local vertebrate animals exclusive of the birds. The student will be expected to become familiar with the majority of our local vertebrate animals. The work is primarily for students intending to teach zoölogy.

Prerequisites—Zoölogy 51 and 52. 1 Report, 2 Lab. per week. 2d S.

55. Systematic Entomology. Prof. Jackson, Mr. Batchelder. 212 T.H.

A laboratory subject consisting of the collection and identification of insects without regard to their economic importance. This is primarily for students of entomology. It is suggested that students electing this subject collect insects during the summer.

Prerequisites—Zoölogy 51 and 52. 1 Report, 2 Lab. per week. 1st S.

56. Ornithology Prof. Jackson. 212 T.H.

A study of the classification, identification and economic importance of the birds. The object of the subject is to enable students to identify birds at sight and to become familiar with their economic importance.

Prerequisites—Zoölogy 51 and 52. 1 Lec., 2 field trips per week. 2d S.

Group B. Physiology, Hygiene and Sanitation.

58. Human Anatomy and Physiology.
Prof. Jackson, Mr. Bean. 212 T.H.

A detailed study of the structure, physiology and histology of the human body. The various physiological processes of the body will be discussed, particularly in regard to their bearing on general hygiene and sanitation. For Home Economics Freshmen, elective for Arts and Science Freshmen and Sophomores. Written reports and library assignments required.

Prerequisite—Zoölogy 51. *2 Lec., 1 Lab. per week. 2d S.*

59. Hygiene and Sanitation. Prof. Jackson, Mr. Bean. 212 T.H.

A study of the fundamental principles of hygiene and sanitation. The nature of disease and method of maintaining the coördination of the body will be discussed, and practical methods of improving the efficiency of a human machine. For Home Economics students. Elective for Agricultural and Arts and Science Sophomores, Juniors and Seniors.

Prerequisite—Zoölogy 51. *2 Lec., 1 Lab. per week. 1st S.*

60. Advanced Sanitation.

Prof. Jackson, Mr. Bean, Mr. Batchelder. 212 T.H.

A continuation of Zoölogy 59, dealing with various phases of industrial and home sanitation. The nature of wound infection, antiseptics and disinfectants, the ventilation of buildings, shops, etc., water supplies and other topics of a practical nature, will be discussed. Frequent written reports.

Prerequisites—Zoölogy 51 and 59. *2 Lec., 1 Lab. per week. 2d S.*

61. Embryology. Prof. Jackson. 201 T.H.

A detailed study of vertebrate embryo, its method of development and the relation of the embryo to the parent. The laboratory work will be primarily with the frog and chick embryo. The lectures will include human embryology. Zoölogy 67, Histology, may be taken parallel with Embryology.

Prerequisites—Zoölogy 51, 52, 57 and 67.

1 Lec., 2 Lab. per week. 1st S.

62. Advanced Neurology. Prof. Jackson, Mr. Bean. 201 T.H.

A study of the structure and physiology of the human nervous system. The laboratory work will consist of a study of the different types of neurons, the nature of nervous impulses and a detailed study of the nerve tract in the brain and spinal column. The subject is primarily adapted for students of psychology.

Prerequisites—Zoölogy 51 and 57. *1 Lec., 2 Lab. per week. 2d S.*

Group C. Philosophical Zoölogy.

64. Evolution and Genetics. Prof. Jackson. 212 T.H.

Lectures dealing with the various problems of evolution, heredity and eugenics. A detailed study of the mechanical basis of heredity and variation with the various theories of evolution, the factors of evolution, inheritance of human characteristics, heredity and disease and other practical problems will be discussed. For Home Economics Juniors. Elective for Agricultural and Arts and Science Juniors and Seniors. Written reports and reviews required.

Prerequisite—Zoölogy 51. *3 Lec. per week. 2d S.*

Group D. Anatomical Zoölogy.

65. Comparative Anatomy of the Invertebrates.

Mr. Batchelder. 203 T.H.

A detailed study of the structure of different types of invertebrate animals exclusive of insects. The subject is primarily for students intending to teach zoölogy.

Prerequisites—Zoölogy 51 and 52. 1 Report, 2 Lab. per week. 1st S.

66. Comparative Anatomy of the Vertebrates.

Mr. Batchelder. 203 T.H.

A detailed study of the structure of different types of vertebrate animals. Primarily for students intending to teach zoölogy.

Prerequisites—Zoölogy 51 and 52. 1 Report, 2 Lab. per week. 1st S.

67. Histology. Prof. Jackson. 203 T.H.

A detailed study of the structure of the tissues of vertebrate animals, cell specialization and the manner in which tissues are combined into organs. The subject is primarily for students intending to teach zoölogy and a great deal of attention will be paid to the technique of histology.

Prerequisites—Zoölogy 51, 52 and 57.

1 Report, 2 Lab. per week. 1st S.

68. Insect Anatomy. Mr. Batchelder. 203 T.H.

A study of the anatomy of different types of insects. Especially adapted for students in entomology.

Prerequisites—Zoölogy 51, 52 and 55. 1 Report, 2 Lab. per week. 2d S.

Group E. Advanced Zoölogy.

69. Advanced Zoölogy. Prof. Jackson. 202 T.H.

Arranged to suit the need of those who wish to specialize in zoölogy. This subject may not be elected except by students who have completed at least 18 hours in zoölogy or entomology with an average mark of at least 80 and then only on the presentation of the detailed outline of the problems they wish to study. The subject is primarily for graduate students. Open only to students by special permission.

Credit and hours to be arranged. 1st S.

70. Advanced Zoölogy. Prof. Jackson. 202 T.H.

A continuation of Zoölogy 69. The subject can only be elected under the above restrictions. Open only to students by special permission.

Credit and hours to be arranged. 2d S.

71. Vocational Zoölogy. Prof. Jackson. 202 T.H.

A discussion of the principles of teaching zoölogy and the application of zoölogy to other lines of work. Practical work will be under the

direct supervision of the head of the department. Lectures will deal with the method of presenting the subject with the adaptation of the subject to meet the special requirements of high schools and colleges; methods of grading laboratory work and examination papers and general laboratory and class administration. The application of zoölogy to various government positions will also be discussed. Only students who have shown special proficiency in zoölogy may elect this subject. Open only to students by special permission.

1 Report, 2 Lab. per week. 1st S.

72. Vocational Zoölogy. Prof. Jackson. 202 T.H.

A continuation of Zoölogy 71. The subject can only be elected under the above restrictions. Open only to students by special permission.

1 Report, 2 Lab. per week. 2d S.

THE TWO-YEAR COURSE IN AGRICULTURE.

This course was established by the state legislature in 1895, and provides an opportunity to secure a training for their life work for those students who do not have the time, money or preparation to take a four-year college course.

The course is especially arranged, and suited for the young, bright boys of the farm, who expect to make a business of some line of agricultural or horticultural work. Although it is open to students who have had no previous training on the farm, the entrance of such is not encouraged because of their lack of practical experience. By independent work and close application, however, inexperienced students sometimes pass the course with credit.

The year's work closes the middle of May, so as to enable the students to get home for the spring work on the farm or to accept other positions for the summer. This short school year also permits four months' time for those students who are dependent upon their own resources to earn money for the following year.

The courses of study and the classes of the two-year course are separate and distinct from those of the four-year courses. The work of the first year is largely preparatory, being a study of the sciences underlying agriculture, together with some elementary agricultural and horticultural work. The second year contains optional studies so that it is possible for students to specialize in animal husbandry, poultry, dairying, horticulture or forestry. Ten hours per week on the average are spent in practical work on the farm, in the barn, greenhouses, shops or forest.

Admission.—The course is open to those having a fair knowledge of reading, spelling, writing, arithmetic, English grammar, geography and history of the United States. Applicants under eighteen years of age, who do not present high school or other satisfactory certificates to show their

proficiency in these subjects, may be given entrance examinations on Tuesday afternoon and Wednesday morning of the opening week of college. Applicants who are over eighteen years of age will be admitted without examination.

Expenses.—The expenses of the course will vary with the taste and frugality of the students and the kind of accommodations which they secure. The total average expense for the year, if the student holds a scholarship, is not far from $300. Many students by working for their board or room rent, or by doing various kinds of work about the college or village, are able to go through the year with a cash outlay not exceeding $150. However, as a rule, such students are either men of exceptional physical alertness, or those who are quick to seize opportunity.

Opening.—The course for the year will open Wednesday, September 19, 1917, and close Wednesday, May 15, 1918. A Christmas vacation of two weeks, and a spring vacation will be given.

Graduation.—No degree is given at the end of the course, but a certificate of graduation is issued upon its completion or the completion of its equivalent.

Students graduating from the two-year course must present to the dean of the agricultural division on or before the second Tuesday preceding their graduation satisfactory evidence of having had practical experience in farm work, either through having lived on a farm for at least two years subsequent to the age of 12 or through having worked on a farm for at least four months subsequent to the age of 15.

Students graduating from this course in 1918 must have at least 74 credit hours.

TWO-YEAR COURSE OF STUDY.

(For details, see description of studies, which follows.)

First Year.

First Semester.	Credit Hours	Second Semester.	Credit Hours
Bot. 31, Elem. of Bot.	3	*A. H. 32*, Breeds of L. Stk.	4
Dairy. 31, Milk and Milk testing	3	*Bot. 32*, Fung. Diseases of Plts.	2
Engl. 31, Gram. and El. Comp.	3	*Chem. 32*, El. Applications.	2
Hort. 33, Fruit Growing	3	*Engl. 32*, Gram. and Comp.	3
Math. 31, Prac. Arith.	2	*Ent. 32*, Econ. Ent.	3
Mil. Art, 31	2	*For. 32*, Farm For.	2
Zoöl. 31, Hum. Phys. and Hyg.	3	*Mil. Art, 32*	2
		Shop 32, Wood Work	2

Second Year.

First Semester.		Second Semester.	
Agr. 31, Farm Eng. and Soils	3	*Agron. 32*, Field Crops	3
**A. H. 35*, Vet. Anat.	3	**Agron. 34*, Manures and Fertilizers.	2
**A. H. 39*, Poultry	3	**Agron. 36*, F. Manag. and Accounting	3
**Dairy. 33*, Butter Making	3	*A. H. 34*, Feeds and Feeding	3
**Dairy. 35*, Dairy Bact.	3	**A. H. 36*, An. Diseases	3
Draw. 31, Agr. Draw.	1	**A. H. 38*, An. Breeding	2
**For. 53*, Dendrology	3	**A. H. 40*, Poultry	3
**Hort. 31*, Veg. Gardening	3	**Dairy. 32*, Market Milk	3
**Hort. 35*, Greenhouse Manag.	3	**Dairy. 34*, Cheese Making	3
Mil. Art, 33	2	*Econ. 32*, El. Econ.	3
Phys. 31, El. Phys.	3	**For. 54*, For. Mensuration	3
Soc. 31, El. Social Sci.	3	**Hort. 32*, Home Decoration	3
		**Hort. 34*, Orchard Problems	2
		Mil. Art, 34	2
		Shop 34, Iron Work	1

DESCRIPTION OF STUDIES.

AGRONOMY.

PROF. TAYLOR, ASST. PROF. PRINCE, MR. YOUNG.

31. Farm Engineering and Soils. Asst. Prof. Prince. 110 M.H.

This subject will include the mapping of farms, leveling for drains, a study of farm implements and of farm buildings; textbooks and recitations upon the formation, kinds and physical properties of soils. Practical exercises are given in map making, laying out drains, comparing farm machines, rope splicing and in physical experiments with soils. For Two-Year Students, Second Year.

2 Rec. 1 Lab. per week. 1st S.

* Elective. Elect courses to make a total of at least 18 hours.

32. Field Crops. Asst. Prof. Prince. 110 M.H.

Lectures and recitations on the culture, uses and value of the field crops grown in New England. Laboratory practice will include seed testing, seed identification, corn and potato judging, hay judging and a study of the different legumes, grasses and grains.

2 Lec., 1 Lab. per week. 2d S.

34. Manures and Fertilizers. Prof. Taylor. 110 M.H.

Textbook and recitations upon the constituents of farm manures and chemical fertilizers, the care and application of manures, the home-mixing of fertilizers and the modifications required by different soils and crops. Elective for Two-Year Students, Second Year.

2 Lec. per week. 2d S.

36. Farm Management and Accounting. Mr. Young. 110 M.H.

Textbook, lectures, and recitations upon different types of farming, size of farms, cropping systems, live stock problems, marketing farm products, choice of a farm, and farm records and accounts. Practical work in laying out farms; keeping cost accounts on farms; analyzing and organizing the farm business. Elective for Two-Year Students, Second Year. *2 Lec., 1 Lab. per week. 2d S.*

ANIMAL HUSBANDRY.

PROF. ECKMAN, MR. FAWCETT.

32. Types and Breeds of Live Stock. Mr. Fawcett. 301 M.H.

Similar to Animal Husbandry 51. For Two-Year Students, First Year. *3 Lec., 1 Lab. per week. 2d S.*

34. Feeds and Feeding. Prof. Eckman. 105 M.H.

Similar to Animal Husbandry 54. For Two-Year Students, Second Year. *2 Rec., 1 Lab. per week. 2d S.*

35. Veterinary Anatomy. Mr. Fawcett. 105 M.H.

Similar to Animal Husbandry 55. Elective for Two-Year Students. *3 Rec. per week. 1st S.*

36. Animal Diseases. Prof. Eckman. 105 M.H.

Similar to Animal Husbandry 56. Elective for Two-Year Students. *Prerequisite—Animal Husbandry 35.* *3 Rec. per week. 2d S.*

38. Animal Breeding. Mr. Fawcett. 2 M.H.

A study of the principles and practices of animal breeding. Practice is given in tracing pedigrees. Elective for Two-Year Students, Second Year. *2 Rec. per week. 2d S.*

BOTANY.

PROF. BUTLER, MR. DORAN.

31. Elements of Botany. Mr. Doran. 206 N.H.

Devoted to the study of how plants grow and how plants feed. For Two-Year Students, First Year. *1 Lec., 2 Lab. per week. 1st S.*

32. Fungous Diseases of Plants. Mr. Doran. 206 N.H.

The principal fungous diseases, their cure and prevention. For Two-Year Students, First Year. *1 Lec., 1 Lab. per week. 2d S.*

CHEMISTRY.

PROF. JAMES, MR. GRANT.

32. Elementary Applications. Mr. Grant. 204 C.H.

An elementary study, with special reference to the elements of plant food, composition of fertilizers, elements subject to exhaustion in soils, etc. For Two-Year Students, First Year. *2 Rec. per week. 2d S.*

DAIRYING.

PROF. FULLER, ASST. PROF. WILSON, MR. AMBROSE.

31. Milk—Milk Testing. Mr. Wilson, Mr. Ambrose. 204 N.H.

Lectures and recitations on the composition and properties of milk, the Babcock test, the lactometer, and the inspection of milk; value and methods of keeping records of dairy cows, coöperation in dairying. For Two-Year Students, First Year. *2 Lec., 1 Lab. per week. 1st S.*

33. Butter Making. Prof. Fuller. Dairy Bldg.

Comparative study of different systems of creaming and factors influencing the efficiency of the hand separator. A study of commercial starters, cream ripening, churning, marketing, and scoring of butter. Elective for Two-Year Students, Second Year.

2 Lec., 1 Lab. per week. 1st S.

34. Cheese Making. Asst. Prof. Wilson. Dairy Bldg.

Lectures and laboratory work covering the details of manufacture, curing and marketing of the more important kinds of cheese. Elective for Two-Year Students, Second Year. *2 Lec., 1 Lab. per week. 2d S.*

36. Dairy Bacteriology. Asst. Prof. Wilson. Dairy Bldg.

Methods of bacteriological analysis of milk and its products; relation of bacteria to milk and its products; and application of bacteriological principles to the dairy industry. Open to a limited number of students. Elective for Two-Year Students, Second Year.

1 Lec., 2 Lab. per week. 2d S.

37. Market Milk. Asst. Prof. Wilson. Dairy Bldg.

A study of the value of milk as a food, the production and handling of market milk and of certified milk. Commercial milk inspection. Exercises will be given in the judging of milk and cream and in the scoring of dairies. Elective for Two-Year Students, Second Year.

2 Lec., 1 Lab. per week. 1st S.

DRAWING.

PROF. HUDDLESTON, MR. ———.

31. Agricultural Drawing. Prof. Huddleston and Mr. ———. 2–39 D.H.

A brief study in the use of drafting instruments, followed by the drawing in plan of a model farm-stead with special study given to the arrangement of buildings individually and collectively. For Two-Year Students, Second Year. *1 drawing period per week. 1st S.*

ECONOMICS.

ASST. PROF. MCKAY.

32. Introduction to Agricultural Economics.

Asst. Prof. McKay. 201 Lib.

This course is designed to give the student the essentials of agricultural economics. Some attention will be given to the principles which determine the value of commodities, of land, of labor, and of capital. Money and banking institutions, with particular reference to the agricultural industry, will also be discussed. For Two-Year Students, Second Year.

1 Lec., 2 Rec. per week. 2d S.

ENGLISH.

PROF. RICHARDS, MR. RAYMOND.

31. Grammar and Elementary Composition. Mr. Raymond. 205 T.H.

For Two-Year Students, First Year. *3 Rec. per week. 1st S.*

32. Grammar and Composition. Mr. Raymond. 205 T.H.

For Two-Year Students, First Year.

Prerequisite—English 31. *3 Rec. per week. 2d S.*

ENTOMOLOGY.

PROF. O'KANE, MR. CLEVELAND.

32. Principles of Economic Entomology.
Prof. O'Kane, Mr. Cleveland. 213 T.H.

The relation of the structure and classification of insects to methods of insect control. The preparation and application of insecticides. Spray machinery and appliances. For Two-Year Students, First Year.
2 Rec., 1 Lab. per week. 2d S.

FORESTRY.

PROF. WOODWARD, MR. GAMASH.

32. Farm Forestry. Prof. Woodward, Mr. Gamash. 202 M.H.

A study of the general principles of forestry with particular reference to the care and management of woodlots; the various methods of cutting and marketing; log scaling; estimating standing timber; protection of forests; seeding and planting; reproducing forests. For Two-Year Students, First Year. *1 Rec., 1 Lab. per week. 2d S.*

HORTICULTURE.

PROF. GOURLEY, ASSOC. PROF. WOLFF, ASST. PROF. SCHERRER.

31. Vegetable Gardening. Asst. Prof. Scherrer. 202 M.H.

A study of the commercial methods of vegetable growing. Special attention is given to the home garden. Elective for Two-Year Students, Second Year. *1 Lec., 1 Rec., 1 Lab. per week. 1st S.*

32. Home Decoration. Asst. Prof. Scherrer. 202 M.H.

A study of ornamental trees, shrubs and flowers; their culture, proper arrangement and decorative value, with special reference to the home surroundings. Elective for Two-Year Students, Second Year.
1 Lec., 1 Rec., 1 Lab. per week. 2d S.

33. Fruit Growing. Assoc. Prof. Wolff. 202 M.H.

This subject embraces a study of commercial orcharding; each fruit is studied with reference to planting, cultivating, pruning, fertilizing, picking, packing, storing and marketing. For Two-Year Students, First Year. *1 Lec., 1 Rec., 1 Lab. per week. 1st S.*

34. Orchard Problems. Prof. Gourley. 202 M.H.

Dealing with the principal problems of farm orchards and commercial orchard management. This subject is designed to show the application of the principles of fruit growing to practical conditions. Elective for Two-Year Students, Second Year.

1 Lec., 1 Lab. per week. 2d S.

35. Greenhouse Management. Asst. Prof. Scherrer. 202 M.H.

Combined lecture, demonstration and laboratory work in greenhouse management. Elective for Two-Year Students, Second Year.

1 Lec., 1 Rec., 1 Lab. per week. 1st S.

MATHEMATICS.

PROF. TAYLOR, MR. YOUNG.

31. Practical Arithmetic. Mr. Young. 301 M.H.

A review of arithmetic with particular reference to decimal fractions, mensuration, and percentage, showing the application of these principles to the solution of practical farm problems. For Two-Year Students, First Year. *2 Rec. per week. 1st S.*

MILITARY ART.

CAPT. HUNT.

Unless excused by proper authority, all male students are required to complete two years' satisfactory work in military art.

Military Art, 31, 32, 33, 34. Capt. Hunt. 105 Armory.

Same as Military Art 1, 2, 3, 4, page 112.

PHYSICS.

PROF. SUYDAM, MR. EMERSON.

31. Elementary Physics. Mr. Emerson. 1–35, 1–37 D.H.

Practical applications of important physical principles in mechanics and heat, including a study of steam and gas engines. For Two-Year Agricultural Students, Second Year. *2 Rec., 1 Lab. per week. 1st S.*

NOTE.—A deposit of $1.00 is required at the beginning of the semester for notes and breakage; balance returned at end of year.

POULTRY.

PROF. MITCHELL.

39. Poultry. Prof. Mitchell. 202 M.H.

Covers the subjects of poultry house construction, types and breeds of poultry, feeding, killing and dressing, caponizing, and equipment. Elective for Two-Year Students. *2 Rec., 1 Lab. per week. 1st S.*

40. Poultry. Prof. Mitchell. 202 M.H.

Covers the subjects of incubation, brooding, care of young stock, market poultry, poultry diseases, and poultry farm problems. Elective for Two-Year Students. *2 Rec., 1 Lab. per week. 2d S.*

SHOP WORK.

PROF. PORTER, MR. BATCHELDER, MR. MCBRIDE.

32. Wood Work. Mr. Batchelder. Second Floor of Shop.

Exercises in carpenter work, joinery and framing. Bench exercises adapted to farm uses. For Two-Year Students, First Year. Fee, $1.00. *1 Lab. per week. 2d S.*

34. Forging. Mr. McBride. First Floor of Shop.

This is a study in the forging of iron and steel and is designed to teach the operation of drawing, upsetting, welding, twisting, splitting, and punching. A study is made of the construction, care and management of the forge and instruction given in tempering, case hardening and annealing. For Two-Year Students, Second Year. Fee, $1.00. *1 Lab. per week. 2d S.*

SOCIOLOGY.

PROF. GROVES, PROF. SIMMERS.

31. Elementary Social Science: Sociology and Rural Education. Prof. Groves, Prof. Simmers. 201 Lib.

An elementary study of the social conditions, forces, and institutions of the rural and small communities, especially in the New England states. The purpose of this course is the development of a social basis for leadership and the fulfillment of the obligations of an educated citizenship in the country and village communities. The second part of the semester will be given up to a study of the problems of rural education and will be conducted by the head of the department of education. For Two-Year Students, Second Year.

3 Rec. per week. 1st S.

ZOÖLOGY.

PROF. JACKSON, MR. BATCHELDER.

31. Human Physiology and Hygiene. Mr. Batchelder. 212 T.H.

A study of the structure, physiology and care of the human body. Special attention is given to the fundamental principles of zoölogy, the nature of parasitic and bacterial diseases and the means of prevention. For Two-Year Students, First Year. *3 Rec. per week. 1st S.*

TWO-YEAR COURSE IN ELEMENTARY INDUSTRIAL ENGINEERING.

Because of the splendid results secured in the two-year course in Agriculture, the trustees were encouraged to offer a two-year course in Elementary Engineering, which began in the fall of 1915.

By this training, any young man, of somewhat mature years, who is interested in any form of mechanics and who desires to fit himself for a profitable position in the industries, will find opportunity to increase his efficiency and thus his earning power. The course is peculiarly adapted to those who have had more or less shop experience. Any young man who is ambitious, industrious and of good moral character, may well consider the advantages here offered.

This course is offered to young men who are likely to enter the mills, factories and machine shops of the state; who will have to do with the practical problems of the telephone, gas engines, the application of water power and other industries. It is not intended to be a trade school in any sense, but the fundamental principles of mechanics, developed in a practical way, will be of direct benefit to the students who take these courses. The endeavor is to provide an opportunity for wage earners to improve their efficiency and thereby better their own and the community's well-being.

The greatest treasure which this country holds today is the undeveloped skill and vocational possibilities, not only of the thousands of our workers everywhere, but of the great army of youth who pass annually from the doors of our elementary schools to serve in the shop, the field and the office. It is highly important to provide some form of vocational training for every boy who can afford to spend even a year or two.

In the training we offer for the industrial workers of this state, the purpose is twofold. First, to increase

the general intelligence of young workers and to lead them to understand better their social and civic duties. Second, to increase their industrial intelligence and skill and to develop capacity for advancement within a given trade where such opportunity exists, or where it does not, to prepare for some skilled and remunerative work in another line.

The course offered is simple, practical and fundamental. It endeavors by every proper means, to lay a foundation, broad in its character, and one that will bring to the student a knowledge of underlying principles. Those who come to take this course, gain in manual skill and productive power; they gather a certain store of industrial knowledge; but they also acquire a certain initiative, a power of construction that will add definitely to their earning power.

Who May Enter These Courses and How.—These two-year courses are open to any young man, sixteen years or more of age who has a knowledge of the ordinary subjects taught in the grades. No written examinations are required.

Anyone desiring to take these courses should write to C. E. Hewitt, Dean of Engineering, Durham, N. H., giving a full outline of the amount of school work he has taken; which of the courses he desires to take; his reasons for wanting to take the course; his age; and any other information that will assist the Dean of Engineering in deciding whether or not the young man is fitted to take the course.

The course the first year includes instruction in the industrial application of electricity, industrial physics, applied mechanics, mechanical drawing, shop work, practical mathematics, English, military art and American citizenship.

The second year includes instruction in the industrial application of electricity, electric controlling devices, electrical design, shop work, power plant design, the economics of business enterprise, military art and sanitation and hygiene for self, home and shop.

COURSES OF STUDY.

(For details, see description of studies which follow.)

TWO-YEAR COURSE IN INDUSTRIAL ELECTRICITY.

First Year.

First Semester.	Credit Hours	Second Semester.	Credit Hours
Draw. 81, Mech. Draw.	2	*Draw. 82*, Mech. Draw.	2
E. E. 81, Appl. of Elec.	3	*Math. 82*, Pract. Math.	2
Engl. 81, Engl.	3	*Mil. Art 82*	2
Math. 81, Pract. Math.	2	*Phys. 82*, Indus. Phys.	7
M. E. 81, Appl. Mech	3	*Pol. Sci. 82*, Am. Cit.	2
Mil. Art 81	2	*Shop 82*, Shop Work	3
Shop 81, Shop Work	3		

Second Year.

First Semester.		Second Semester.	
Econ. 81, Indus. Dev. and B. O.	3	*E. E. 84*, Appl. of Elec.	3
E. E. 83, Appl. of Elec.	3	*E. E. 86*, Elec. Contr. Dev.	2
E. E. 85, Elec. Contr. Dev.	2	*E. E. 88*, Elec. Design	2
E. E. 87, Elec. Design	2	*E. E. 90*, Power Plant Design	3
E. E. 89, Power Design	3	*Mil. Art 84*	2
Mil. Art 83	2	*Physio. 82*, San. and Hyg.	3
Shop 83, Shop Work	3	*Shop 84*, Shop Work	3

TWO-YEAR COURSE IN INDUSTRIAL MECHANICS.

First Year.

First Semester.		Second Semester.	
Draw. 81, Mech. Draw.	2	*Draw. 82*, Mech. Draw.	2
E. E. 81, Appl. of Elec.	3	*Math. 82*, Pract. Math.	2
Engl. 81, Engl.	3	*Mil. Art 82*	2
Math. 81, Pract. Math.	2	*Phys. 82*, Indus. Phys.	7
M. E. 81, Appl. Mech.	3	*Pol. Sci. 82*, Am. Cit.	2
Mil. Art 81	2	*Shop 82*, Shop Work	3
Shop 81, Shop Work	3		

First Semester.		Second Semester.	
Econ. 81, Indus. Dev. and B. O.	3	*E. E. 84*, Appl. of Elec.	3
E. E. 83, Appl. of Elec.	3	*M. E. 84*, Appl. Mech.	5
M. E. 83, Appl. Mech.	5	*M. E. 86*, El. Mach. Design	2
M. E. 85, El. Mach. Design.	2	*Mil. Art 84*	2
Mil. Art 83	2	*Physio. 82*, San. and Hyg.	3
Shop 83, Shop Work	3	*Shop 84*, Shop Work	3

DESCRIPTION OF STUDIES.

DRAWING.

PROF. HUDDLESTON, MR. ———.

81. Mechanical Drawing. Mr. ———. 2–39 D.H.

This subject is intended primarily to develop power in the individual to express through drawing his ideas, particularly as they relate to industrial problems. To accomplish this, instruction is given in free-hand lettering, the use of drafting instruments, and the explanation and study of systems of object drawing, including projection drawing as a study of the relation of different views of a given object; also of isometric drawing as a study in pictorial representation of machines and machine parts. The whole object is to give power of expression through the pencil and develop habits of exact thinking. For First Year Two-Year Students in Industrial Mechanics and Industrial Electricity. *Two drawing periods per week. 1st S.*

82. Mechanical Drawing. Mr. ———. 2–39 D.H.

The object of this is to develop skill and power in the visualizing and sketching of machines and machine tools, such as the student uses in actual shop practice. The work consists of definite instruction and continued practice in the making and the reading of shop and assembly drawings, tracings and blue prints, including a study of shop and drafting room methods. For First Year Two-Year Students in Industrial Mechanics and Industrial Electricity.

Prerequisite—Drawing 81. *Two drawing periods per week. 2d S.*

ECONOMICS.

ASST. PROF. MCKAY.

81. Industrial Development and Business Organization.

Asst. Prof. McKay. 204 Lib.

The chief aim of this course is to acquaint the student with the various phases of the industrial development of the United States and with the different types of business organization with special reference to the present time. This involves a somewhat careful consideration of the several stages in the industrial development of European countries. Some time is given to the study of the monetary and banking situation in the United States. For Second Year Two-Year Students in Industrial Mechanics and Industrial Electricity.

2 Lec., 1 Rec. per week. 1st S.

ELECTRICAL ENGINEERING.

PROF. HEWITT, ASST. PROF. HITCHCOCK, MR. WHIPPLE.

81. Industrial Application of Electricity.

Asst. Prof. Hitchcock, Mr. Whipple. 1–29 D.H.

In the recitation periods, there is studied the general principles of electricity and magnetism; the general principles involved in the wiring of buildings in order that electricity may be used for electric lighting, electric power and for other domestic purposes; a study is made of the requirements of the National Board of Fire Underwriters in connection with electrical installations.

In the laboratory periods, actual experiments are performed to illustrate the different types of electric wiring, including the use of the various electrical fittings and their proper installations; various experiments are performed to illustrate in a practical way the general principles of electricity and magnetism as taken up in the recitation periods. The laboratory periods run parallel with the recitation periods and give a student the actual practical applications of the different principles taken up. For First Year Two-Year Students in Industrial Mechanics and Industrial Electricity.

2 Rec., 1 Lab. per week. 1st S.

83. Industrial Application of Electricity.

Asst. Prof. Hitchcock, Mr. Whipple. 1–29 D.H.

In the recitation periods, there is described the principles of electric dynamos and motors, both direct and alternating current, the method of computing the size of feeders and transmission circuits; a practical study of measuring instruments, electrical safety devices, switches, wattmeters, etc.; simple switchboard construction and the method used in the care and operation of the switchboard equipment.

In the laboratory periods, actual experiments are performed on dynamos and motors, both direct and alternating current, showing the method of connecting, operating and care of same; experiments are performed to show the fall of potential on transmission circuits and feeders, also the use, adaptability and method of connecting in circuit various types of electrical measuring instruments. For Second Year Two-Year Students in Industrial Mechanics and Industrial Electricity. *2 Rec., 1 Lab. per week. 1st S.*

84. Industrial Application of Electricity.

Asst. Prof. Hitchcock. 1–29 D.H.

In the recitation periods, there is studied the fundamental principles and operation of telephones, including bridging, series and intercommunicating types; a study of commercial testing for faults in dynamos and motors and other electrical devices and a practical study

will be made of general repair work, including materials available for such work and the adaptation of these materials to different classes of repair work.

In the laboratory periods, experiments are performed on the different types of telephones including the taking apart and putting together of every different part of the telephone including transmitter, receiver, induction coil, ringer, magneto, switches, etc.; actual practice will be given in repair work, winding of armatures, transformers, etc.; experiments are arranged for testing out and locating faults in dynamos, motors, transformers, etc. For Second Year Two-Year Students in Industrial Mechanics and Industrial Electricity.

2 Rec., 1 Lab. per week. 2d S.

85. Electric Controlling Devices. Mr. Whipple. 1–29 D.H.

This subject includes a careful study of the various forms of electric controllers; automatic starters used in connection with motors; no voltage and no field release starting rheostats; overload devices, including circuit breakers, time relays, etc., for the protection of motors and dynamos; remote controlling devices; methods and apparatus used for automatically stopping and starting motors at points remote from the motor, including the method of so connecting a pump to an electric motor that it will automatically start when the water in the tank has fallen to a certain level and will automatically stop when the water has reached a certain level. For Second Year Two-Year Students in Industrial Electricity. *2 Rec. per week. 1st S.*

86. Electric Controlling Devices. Mr. Whipple. 1–29 D.H.

This subject includes a careful study of the so-called Tirrell regulators used for automatically keeping the supply voltage constant, including regulators that are adapted for direct current generators and also adapted to alternating current generators, both single phase and polyphase; induction feeder regulators for producing constant voltage on an alternating current feeder when the supply voltage varies between quite wide limits; the principle and operation of mercury arc rectifiers; Murphy electricity rectifiers; the principle and care of electric storage batteries and their application to industrial service; principle and care of transformers, both constant potential and constant current types, and their application to industrial service. For Second Year Two-Year Students in Industrial Electricity. *2 Rec. per week. 2d S.*

87. Electrical Design. Mr. Whipple. 1–28 D.H.

Under this subject is studied some of the fundamental and general principles upon which various electrical apparatus operate, such as controlling devices, rheostats, resistances, arc lamps, incandescent lamps, regulators, switches, circuit breakers, storage batteries, starting

devices, etc. These various devices are examined, taken apart and put together again, in order to see the actual methods of construction, the principles upon which each part operates and the relation of the parts. For Second Year Two-Year Students in Industrial Electricity.

2 Lab. per week. 1st S.

88. Electrical Design. Mr. Whipple. 1–28 D.H.

Under this subject principles are developed by means of which it is possible to figure out resistances, rheostats, switches, electro-magnets, electric controlling devices, etc. For Second Year Two-Year Students in Industrial Electricity. *2 Lab. per week. 2d S.*

89. Power Plant Design. Prof. Hewitt. 1–29 D.H.

Under this subject there is studied the equipment of an ordinary power house from a practical standpoint, special study being given to so-called isolated plants adapted for private use or for community use; the best choice of electrical machinery to meet different conditions; the relation between the various parts of the equipment, including boilers, engines, switchboards, controlling devices, pumps, injectors and other auxiliaries; the operation and care of the equipment; the application and the adaptation in certain cases of fuel oil engines, gasoline engines, gas engines, water wheels as prime movers for operating electric dynamos for the generation of current. For Second Year Two-Year Students in Industrial Electricity.

2 Rec., 1 Lab. per week. 1st S.

90. Power Plant Design. Prof. Hewitt. 1–29 D.H.

Under this subject, there is studied the principles and the practical features in design for hydro-electric developments, including some practical methods of measuring the flow of water, method of constructing dams and methods of measuring amount of power available in a stream; the design and construction of transmission lines, including various materials and supplies available for same; the care of pole line equipment, including the preservation of the poles themselves; the care of transformers, lightning arresters and other devices. For Second Year Two-Year Students in Industrial Electricity.

2 Rec., 1 Lab. per week. 2d S.

ENGLISH.

PROF. RICHARDS, MR. RAYMOND.

81. English. Mr. Raymond. 208 T.H.

The purpose of this subject is to teach self-expression. The man who is unable to present his thoughts clearly in speech or writing is greatly handicapped. Technical skill is robbed of its usefulness to him, because

when he talks, he misrepresents himself. Men who hear him unavoidably, if sometimes wrongly, mark him as lacking in intelligence. This study in English is to teach the student how to make others appreciate him. It is to teach him how to get full value for the skill and intelligence that may be his. It is to enable him to establish correct relations with his fellows.

The work consists of written and oral exercises. The instruction is not a drill in formal grammar, but an attempt in a practical way to develop the use of correct speech. For First Year Two-Year Students in Industrial Mechanics and Industrial Electricity.

3 Rec. per week. 1st S.

MATHEMATICS.

PROF. PETTEE, ASSOC. PROF. STECK, MR. GARABEDIAN.

81. Mathematics. { Assoc. Prof. Steck. D.H. / Mr. Garabedian. D.H.

Special emphasis is placed on the solution of practical problems related to industrial work. The instruction includes a review of the fundamental principles of arithmetic; the use of simple formulas; the use of cross-section paper for graphical representation, etc. For First Year Two-Year Students in Industrial Mechanics and Industrial Electricity. *2 Rec. per week. 1st S.*

82. Mathematics. { Assoc. Prof. Steck. D.H. / Mr. Garabedian. D.H.

Instruction is given in the solution of plane triangles; simple geometrical construction; useful applications of algebra, etc. For First Year Two-Year Students in Industrial Mechanics and Industrial Electricity. *2 Rec. per week. 2d S.*

MECHANICAL ENGINEERING.

PROF. PORTER.

81. Applied Mechanics. Prof. Porter. 2–45 D.H.

The recitation periods are devoted to lectures on the properties, commercial forms and methods of manufacture of the materials most used in engineering, such as wrought iron, cast iron, steel, brass, bronze and cement.

During the laboratory periods experiments are made to determine the yield point, the breaking load per square inch, elongation and reduction of area of samples of material such as cast iron, wrought iron and steel. Experiments are made on the compressive and tensile strength of cement. For First Year Two-Year Students in Industrial Mechanics and Industrial Electricity. *2 Rec., 1 Lab. per week. 1st S.*

83. Applied Mechanics. Prof. Porter. 2–48 D.H.

In the recitation periods there is studied steam boilers, types of steam boilers, fire tube boilers, water tube boilers, boiler calculations, stays and stayings, heat and work, properties of steam, fuels, methods of firing, smokeless combustion of fuel, settings, pipings and boiler fittings, boiler accessories, inspection and care of boilers, types of steam engines, selection of types, rotative speed, piston speed, mean effective pressure, steam engine indicators, calculation of horse power, condensers and pumps, feed water heaters and economizers.

During the laboratory periods exercises are given on valve setting, tests of steam boilers and engines, tests of auxiliary apparatus and pumps. These exercises are carried on so as to illustrate by practical application the principles taught during the recitation periods. For Second Year Two-Year Students in Industrial Mechanics.

3 Rec., 2 Lab. per week. 1st S.

84. Applied Mechanics. Prof. Porter. 2–48 D.H.

During the recitation periods studies are made of gas engines, gas engine cycles, types of gas engines, methods of governing, methods of ignition, carburetors, gasoline and oil engines, natural gas, artificial gas and producer gas.

The Laboratory periods are devoted to tests on gas engines. For Second Year Two-Year Students in Industrial Mechanics.

4 Rec., 1 Lab. per week. 2d S.

85. Elementary Machine Design. Prof. Porter. 2–40 D.H.

Including rivets and rivet joints, screw threads and bolts, keys and cotters, journals, crank pins and collar bearings, axles and shafts, tooth gearing, belts and pulleys. Instruction includes practice in sketching, designing and making working drawings of machine details, the use of formulas and handbooks. For Second Year Two-Year Students in Industrial Mechanics. *2 Lab. per week. 1st S.*

86. Machine Design. Prof. Porter. 2–40 D.H.

The complete design of some simple machine, including calculation on the strength of the different parts and the making of complete working drawings. For Second Year Two-Year Students in Industrial Mechanics. *1 Rec., 2 Lab. per week. 2d S.*

MILITARY ART.

CAPT. HUNT.

Unless excused by proper authority, all male students are required to complete two years' satisfactory work in military art.

Military Art 81, 82, 83, 84. Capt. Hunt. 105 Armory.

Same as Military Art, 1, 2, 3 and 4, page 112.

PHYSICS.

PROF. SUYDAM, MR. MORAN, MR. EMERSON.

82. Industrial Physics.

Prof. Suydam, Mr. Moran, Mr. Emerson. 1–35 D.H.

Devoted to the applications of scientific principles of mechanics and heat to practical uses. The mathematics needed are of the simplest, and particular attention is paid to good ways of calculating. Problems in large numbers are used for the illustration of the principles, and practice in the use of scientific instruments and in the experimental illustration of principles is given in the laboratory.

The work includes the laws of water pressure in pipes, tanks, etc.; the principle of work, and the efficiency of ideal and actual levers, pulleys, screws and their combinations; the laws of gas pressure, barometers, siphons, pumps; kinetic and potential energy of moving, falling and rotating bodies, pendulums, clocks, flywheels, the hydraulic ram, etc.; elasticity and springs; temperature and thermometers, expansion and contraction, the measurement of heat, boiling, freezing, the properties of steam, combustion, heat conveyance, pipes and lagging, the relation of heat and work, heat engines. For First Year Two-Year Students in Industrial Mechanics and Industrial Electricity.

2 Lec., 2 Rec., 3 Lab. per week. 2d S.

NOTE.—A deposit of $1.00 is required at the beginning of the semester, for notes and breakage; balance returned at end of year.

PHYSIOLOGY.

PROF. JACKSON.

Physiology 82. Sanitation and Hygiene. Prof. Jackson. 212 T.H.

The purpose of this subject is to increase and maintain the efficiency of the human machine. With this in view, it will deal with the following:

(a) Sanitation of the Home. There are discussions of the proper and improper sewage disposal; water supply; ventilation and other conditions of the home calculated to spread or favor the development of disease.

(b) Shop Sanitation. A discussion of the spread of bacterial diseases through improper shop sanitation. The effect of dust and other waste material on the health of the workmen and the importance of sunlight and proper ventilation.

(c) Personal Hygiene. A discussion of clothing, proper food, both mental and physical exercise, and other matters of personal hygiene.

(d) First aid treatment of injuries received in shop work is considered, including the prevention of wound infection, permanent treatment of minor injuries and temporary treatment of major injuries pending the arrival of a physician.

Private conferences are solicited with students on any special problem of Hygiene and Sanitation. For First Year Two-Year Students in Industrial Mechanics and Industrial Electricity.

3 Rec. per week. 2d S.

POLITICAL SCIENCE.

PROF. SCOTT, MR. SCOTT.

82. American Citizenship. Mr. Scott. 202 Lib.

This subject proceeds on the theory that a proper and necessary equipment for life includes training in the fundamental principles of good citizenship. The broad principles of the national constitution are considered, together with a brief study of the constitution of New Hampshire. The subject, however, is concerned chiefly with practical illustrations of the duties of citizenship and the relationship of man to man. For First Year Two-Year Students in Industrial Mechanics and Industrial Electricity. *2 Rec. per week. 2d S.*

SHOP.

PROF. PORTER, MR. BATCHELDER, MR. MCBRIDE.

81. Shop Work. Mr. Batchelder. Second Floor of Shop.

Practice in the use of wood working tools; laying out work from drawings, mortising and framing; bench work and joinery; wood turning; the use of band and circular saws and wood planer. For First Year Two-Year Students in Industrial Mechanics and Industrial Electricity. Fee $2.00. *3 Lab. per week. 1st S.*

82. Shop Work. Mr. Batchelder. Second Floor of Shop.

Exercises in the construction of solid, split and loose piece patterns and core boxes, such as are found in ordinary practice in commercial pattern shops; practice in floor and bench moulding with different kinds of moulding sand, setting of cores and risers, methods of gating and venting, charging and managing the cupola. For First Year Two-Year Students in Industrial Mechanics and Industrial Electricity. Fee, $2.00. *3 Lab. per week. 2d S.*

83. Blacksmithing. Mr. McBride. Forge Shop.

This is a study in the forging of iron and steel and is designed to teach the operations of drawing, upsetting, welding, twisting, splitting and punching. A study is made of the construction, care and management of the forge and instruction given in tempering, case hardening and annealing. For Second Year Two-Year Students in Industrial Mechanics and Industrial Electricity. Fee, $1.50.

3 Lab. per week. 1st S.

84. Machine Shop Work. Mr. McBride. Forge Shop.

Exercises in bench work, chipping, filing and scraping and laying out of work from drawings; a study of cutting edges and tool adjustments best suited for different metals together with a study of cutting speeds and feeds. Practice in operating the principal machine tools, such as the shaper, lathe, drill press, planer and milling machine. For Second Year Two-Year Students in Industrial Mechanics and Industrial Electricity. Fee, $2.00. *3 Lab. per week. 2d S.*

THE WINTER SHORT COURSES IN AGRICULTURE.

The college offers these short courses for the purpose of affording an opportunity for the boys, the young men, and the older men and women on the farms of our state to acquaint themselves with the latest and most approved principles and practices of agriculture. Since many of our farm people find it impossible to leave their homes during the spring, summer and fall months, these courses are given during the winter when most people can find time to slip away for at least a week.

There is no longer any question concerning the value of practical scientific training for those who are engaged in farming. The increasing interest in agricultural work, the higher prices of farm products and the keener competition in all lines of production is making an education and training more and more a necessity for the people on our farms. It is hoped that these "short courses" will open an additional avenue through which the college may prove its value and usefulness to the farmers of the state.

FARMERS' WEEK.

The tenth annual Farmers' Week will begin *Tuesday, January 1.* A special program of the exercises during the week will be issued during the holidays, a copy of which will be sent to any one upon request.

This course is designed to meet the needs of the every-day practical farmer and his wife who cannot leave home for more than a few days but who wish to get some new ideas concerning the latest and best methods of farm, orchard and dairy operations and of household work.

Meetings of various state organizations will be held during the week in connection with the regular program.

DAIRY COURSE.

The twenty-third annual Dairy Course will open *Monday, February 4*, and will close *Friday, March 8*.

Students expecting to take this course should present themselves at the Registrar's office in Thompson Hall on the opening day. Lectures and laboratory work will begin on the day following.

Instruction in Dairy Practice.—Instruction in the Dairy Course is given by lectures and recitations and by laboratory work in the barn, dairy and creamery. The equipment in the dairy building is such that the laboratory work can be made applicable both to farm and factory conditions. The student will have an opportunity to study the construction, efficiency, and operation of the various machines used in handling of milk and making of butter. The use of the Babcock test in apportioning the money value of milk is regulated by state law. The importance of the test in the successful improvement of the dairy herd is becoming more and more apparent. The details of the test will be studied, and the student will practice testing milk, cream, skim-milk and buttermilk until fully competent to perform the work either for himself or for others.

The course in every respect is made as practical as possible. The instruction is planned to meet the needs of two classes of students: first, *buttermakers* and *ice cream makers*, second, *dairymen* and *milk producers*.

Opportunities in Dairy Work.—The need of competent, trained dairymen is greater than ever before. There is an increasing demand for high grade dairy products, such as butter, cheese, ice cream and condensed milk, and the making of these calls for first-class dairymen. The continuous campaign for pure milk in our cities is constantly opening up new positions for milk inspectors, and for men with training who can successfully manage dairy farms and care for the herd so as to produce sanitary milk economically. It also opens positions for men who are capable of operating

milk depots and other dairy establishments. The organization of cow-test associations is opening up a new field for dairy workers. Although the dairy department does not guarantee to find positions for those registered in the course, it has opportunities to recommend students for a large number of positions. Inquiries for competent men are received throughout the year and thus far the College has been unable to supply men for all the places it has been asked to fill.

Equipment.—The New Hampshire College with its new dairy building offers excellent opportunities for giving instruction in practical dairy work.

Entirely new equipment has been installed in the college creamery, each piece of machinery being run by an individual electric motor. In addition to the milk obtained from the college herd, the creamery receives milk and cream from about forty farms. By this arrangement sufficient milk for practical work is furnished at all times. The farm dairy is equipped with the leading kinds of hand separators and hand as well as small-power churns suitable for private dairies. The milk-testing and milk inspection laboratory is equipped with Babcock testers, sediment testers, acid-meters, and other apparatus necessary for inspection of milk and cream both as to fat content and other qualities. The creamery also contains bacteriology laboratories, a lecture room, offices, a reading room and an up-to-date milk bottling plant.

Dairy Cattle.—Representatives of the Jersey, Guernsey, Ayrshire and Holstein breeds are owned by the college and are used to acquaint the students with the different breeds and types of dairy cattle.

Prizes.—Through the courtesy of Mr. Thomas Jones Davis of Duluth, Minnesota, three suitable prizes will be given to students who rank the highest in judging dairy cattle of the different breeds.

Expenses.—Tuition in the short courses is free to residents of New Hampshire. Non-residents will pay a tuition fee of $2 for each of the one-week courses and $10 for the dairy course. Board and room will cost between $5 and $6 per week. Other expenses, including books, need not exceed a total of $5, although an allowance of $10 for the purchase of books to be taken home would be a good investment.

DESCRIPTION OF SUBJECTS TAUGHT IN THE DAIRY COURSE.

DAIRY PRODUCTS.

PROF. FULLER, ASST. PROF. WILSON, MR. AMBROSE.

Dairying 40. Butter Making and Ice Cream Making.

Lectures and recitations on the different systems of creaming milk; a comparison of the efficiency of different cream separators under varying conditions; cream ripening; churning, washing, marketing and scoring of butter; plain and fancy ice cream; ices.

2 Lec., 2 Lab. per week.

Dairying 41. Dairy Bacteriology.

Lectures and demonstrations on the function of bacteria and the application of bacteriological principles to dairy work, such as pasteurization, cream ripening, commercial starters and deterioration of butter.

2 exercises per week.

Dairying 42. Market Milk.

A study of the value of milk as a food and its relation to public health. The production and handling of market milk and certified milk. Commercial milk inspection. Exercises are given in the scoring of milk and cream, and in the scoring of dairies.

2 Lec., 1 Lab. per week.

Dairying 43. Milk Testing.

This subject consists of a study of the composition, the physical and chemical properties of milk, the various methods of sampling and testing milk and cream, the testing of dairy herds and organizing and operating cow test associations.

2 Lec., 2 Lab. per week

DAIRY CATTLE.

PROF. ECKMAN, MR. FAWCETT.

Animal Husbandry 42. Breeds and Breeding.

Lectures and recitations upon the origin, history, characteristics, and adaptability of the breeds of dairy cattle. The practical work consists of scoring and judging the various breeds, and in tracing pedigrees of animals in the herd books.

2 lectures and 1 judging period per week.

Animal Husbandry 44. Diseases of Cattle.

This subject consists of lectures and recitations upon the anatomy and physiology of the cow, with special reference to the digestive, reproductive and milk-producing organs. The common diseases, their causes and the methods of treatment are discussed.

2 exercises per week.

Animal Husbandry 45. Feeds and Feeding.

Lectures and recitations upon the composition and digestibility of feeding stuffs. A detailed study of the different grains and feeds, and their value in a dairy ration. Practice is given in computing and mixing rations for the dairy cow, and in fitting animals for the show ring.

3 exercises per week.

NEW HAMPSHIRE AGRICULTURAL EXPERIMENT STATION.

Most of the agricultural experiment stations of the various states, including that of New Hampshire, were founded in 1888 by an act of congress, approved March 2, 1887, known as the Hatch Act, in honor of its author. This act appropriated fifteen thousand dollars ($15,000) annually for the maintenance of an agricultural experiment station in each state. This act provides:

"That it shall be the object and duty of said experiment stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural and artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories." The act also provides that the results of such work shall be published in bulletins and reports.

A further endowment of the experiment stations to provide specifically for research work was made by the Adams Act, passed by congress and approved March 16, 1906, which provided an increased annual appropriation which

now amounts to $15,000 each year. This appropriation is specifically limited to the "necessary expenses of conducting original researches or experiments," and the rulings of the United States Department of Agriculture, which is vested with the supervision of the expenditures under this act, require that this appropriation be spent in fundamental investigations or researches to determine the underlying causes and principles of agricultural science, rather than for mere experiments to secure results of immediate practical application as contemplated under the Hatch Act appropriation. The purposes of the two acts are, therefore, supplementary but distinct.

The New Hampshire Agricultural Experiment Station is organized as a department of the New Hampshire College of Agriculture and the Mechanic Arts, and is administered by a board of control, elected by its board of trustees.

The publications of the station comprise 181 bulletins of the regular series and 17 circulars, 11 technical bulletins, 9 scientific contributions, and 4 school bulletins. The bulletins are issued at irregular intervals and are sent to all residents of New Hampshire requesting them. Back numbers will be sent as long as the supply lasts. Lists of available publications will be sent upon request.

The above quotations taken from the Hatch and Adams acts are sufficient to indicate the true function of this and other experiment stations called into being by the passage of those laws. At first the experiment stations found it difficult to resist the popular demand made upon them to enter the extension field, to the neglect of research, but it is to the credit of the officials having the directing and executing of those laws in charge that our stations have proved true to their trust. If the stations had not devoted their energies to the fields of original research our agriculture could not possibly be upon the high plane which it occupies to-day.

The introduction of the extension service as a recognized part of the work of this and other similar institutions only serves to emphasize the importance of experiment station

work. In our haste to produce immediate results we sometimes lose sight of the value of the work of our experiment stations. We do not realize the debt agriculture owes to the scientists who are willing to devote their life work to the study of one subject, or at least a very few subjects, without thought to personal ambition and advancement, but purely seeking after truth and the advancement of science.

We can, perhaps, best indicate in a brief way the present work of the New Hampshire Experiment Station by calling attention to some of those projects which are receiving special study and attention.

ADAMS FUND.

Botanical Department.—A study of the toxic action of fungicides to parasitic fungi; physiology of the apple; a study of the effect of fungicides and insecticides on plants; a histological study of the fruit branches of the apple.

Chemical Department.—Potash in clay soils; chemical studies of the apple; a study of adhesiveness of spray materials.

Entomological Department.—Control of root maggots by insecticides.

Horticultural Department.—Plant breeding: carnation breeding, squash breeding; fruit bud formation.

Animal Husbandry Department.—Sheep breeding.

The New Hampshire Agricultural Experiment Station is glad to give advice and assistance regarding all lines of agriculture. The experiment station is at all times at the service of the citizens of New Hampshire.

HATCH FUND.

Agronomy Department.—Variety tests of corn; ear row test of corn; fertilizer tests on grass lands; alfalfa improvement; clover plant selection; timothy selection and breeding; investigations on potato culture and fertilization.

Botany Department.—Effect of storage temperature on the keeping qualities of potatoes; the snapdragon rust and its control.

Entomological Department.—Control of black flies and midgets; economic collection of insects; arsenical residues on fruit, foliage and grass, following spraying; the control of browntails.

Horticultural Department.—Variety tests of plums; variety tests of apples; variety tests of small fruits; blueberry industry in New Hampshire.

Forestry Department.—Experiments in raising forest tree seedlings; experiments in establishing artificial forests of different species; experiments in immature white pine stands.

EXTENSION SERVICE.

The last few years have witnessed in this country a remarkable growth in the development of methods of teaching agriculture. The attitude of the public in general, as well as the rural population, toward technical agricultural training has become decidedly favorable. This change in feeling by the public toward the work of institutions offering training in agriculture has made possible and is responsible to a large extent for the unprecedented progress which has been made in agricultural teaching during the last dozen or fifteen years.

The extension service is intended to serve as a medium by which to take the work of both the college classroom and the experiment station fields and laboratories directly to

the homes and to the fields of the farmers. It is very difficult to place any just estimate upon the value of such service to a state or to the nation. The farmer's cause is no longer considered of interest only to him. It is recognized today as never before that upon the prosperity of the farmer depends quite largely the general prosperity of all classes of people. The present high cost of living has done much to attract the attention of people to the relation which the farmer and his interests bear to them personally.

What the colleges and universities are to those young men and young women who come within their walls, the extension service is, only to a lesser degree, to the thousands who are beyond the reach of the classroom. In this state, for example, we have six hundred and sixty-three students enrolled at New Hampshire College, while there is a rural population in the state of nearly two hundred thousand, many of whom it is possible to reach in some tangible and helpful way through the extension service.

Space will allow only sufficient room to name some of the activities of the extension service which have been given special emphasis during the past year. This brief outline will perhaps serve to indicate in a general way the scope of the work and something as to its value to the industrial interests of the state.

Correspondence: Letters of inquiry.

Field Demonstrations: In coöperation with farmers.

Variety Tests of Corn: In coöperation with farmers, and on county farms.

Top Dressing Hay Lands: In coöperation with farmers.

Value of Lime on New Hampshire Soils: In coöperation with farmers.

Orchard Sod Mulch.

Spraying Demonstrations.

Orchard Cover Crops.

Pruning and Spraying Demonstrations.

Agricultural Reading Courses: Nine subjects.

Special Days at the College: Orchard Day, Poultry Day, Dairy Day.

College and Station exhibits at Fairs and at Agricultural meetings.

Boys' Club Work.

Girls' Club Work.

Extension Publications: 61 extension press bulletins, 19 extension circulars, 7 extension bulletins.

Extension literature is sent to a mailing list of 12,000 in the state. Publications are sent free to every one requesting them.

COÖPERATIVE AGRICULTURAL EXTENSION WORK SMITH-LEVER FUND.

Under the provisions of an act of Congress approved May 8, 1914, New Hampshire, the same as every other state, receives the sum of $10,000 from the federal government for supplementing and strengthening the extension work of the Agricultural College.

In addition to the annual appropriation of $10,000, each state is to share in increased allotments for seven years in the proportion which the rural population of each state is to the total rural population of all the states as determined by the next preceding federal census provided the state shall appropriate an equal sum. If New Hampshire fulfills her part in carrying out the provisions of the Smith-Lever law, the state will receive in 1922–23 and thereafter, from the federal government, annually the sum of $24,572, for conducting coöperative demonstration work in agriculture and home economics.

This financial assistance from the federal government

coming to New Hampshire as it does at a time when state and other funds are inadequate for meeting the demands which are constantly being made upon the college, will make it possible for the extension service to strengthen and develop its work along all lines and inject new life into every branch of the service.

The organization of distinct departments or divisions of extension service in connection with our state colleges and universities gives recognition and standing to the threefold function teaching resident students; conducting investigations; and carrying information and assistance from the college and station into all parts of the state, or extension work of the institution.

It will no longer be necessary for the experiment stations to carry on general miscellaneous demonstrations under the guise of experiments. In the earlier history of our experiment stations, before the work was clearly defined, they were practically compelled by popular demand to engage in demonstration work.

The extension service with its own corps of men will relieve the college teaching staff and station workers from much of the miscellaneous extension work which they, of necessity, have been compelled to carry on in the past.

This new organization will permit the selection and assigning of such duties to the individual as he seems best fitted to perform, which will work for efficiency in all three departments or divisions. We have the Smith-Lever law to thank for hastening the time of bringing these things to pass.

The United States Department of Agriculture has created what is known as the States Relations Service to take charge of and coöperate with the several states in carrying out the provisions of the Smith-Lever law. Having the extension work of each state closely associated with the work of the United States Department of Agriculture through the States Relations Service will be a very potent factor in unifying and strengthening the extension work throughout the United States.

In starting the coöperative extension work in New Hampshire it has been the plan *first* to perfect an efficient organization through which to work; *second*, to recognize and attempt to assist in the development of the most important branches of agriculture in the state and to meet the most urgent needs for assistance in home economics.

In carrying out this general scheme and the provisions of the memorandum of understanding entered into with the States Relations Service, whereby all extension work conducted with Smith-Lever funds shall be on the project basis, approved by them, the following nine projects have been adopted.

Project No. 1. Organization of Coöperative Agricultural Extension work.

Project No. 2. County Agricultural Agents.

Project No. 3. Extension Instruction—Home Economics.

Project No. 4. Dairy Cow Test Associations.

Project No. 5. Orchard Demonstrations.

Project No. 6. Extension Schools.

Project No. 7. Demonstrations in Vegetable Gardening.

Project No. 8. Farm Management Demonstrations.

Project No. 9. County Farm Home Demonstration Agents.

Project No. 1: *Organization of Coöperative Agricultural Extension Work.*

Project No. 1 has to do with the general organization and administration of the extension work conducted with Smith-Lever funds.

Project No. 2: *County Agricultural Agents.*

Emphasis has been given to county agricultural agent work because it has been demonstrated beyond question that by having an extension representative located in each county, it makes the most efficient organization within a state for conducting extension activities.

The county agent movement serves also as an important means by which the extension service of the college may enter into coöperative agreements with the County Farmers Associations and with the Office of Extension Work in the North and West, a new office in the States Relation Service, United States Department of Agriculture which has immediate charge of the coöperative extension work in the northern and western states.

For financial reasons the county agent movement through the plan of coöperation cited above makes available $4 for every $1 of college Smith-Lever funds expended in the county, which, in view of the unquestioned value of county agent work, commends this type of extension service.

We have eight of the ten counties organized at present and as soon as the other two counties can be organized it is planned to appoint agents so that there will be an agent in each county in the state.

A state leader of county agent work has been appointed to take immediate charge of the work. The state leader is employed jointly and represents the extension service of the college and the United States Department of Agriculture.

Project No. 3: *Extension Instruction, Home Economics.*

The Smith-Lever law makes provision for giving demonstration work in home economics. The college receives a great many requests for lectures and demonstrations in home economics from all parts of the state. These demands have been met as far as possible. A woman has been employed to organize women's clubs in different parts of the state. The instructor gives demonstrations and instructions in home economics which will tend to stimulate more interest in rural life and help to improve the healthfulness, the social life, and the economic conditions of the farm homes of the state.

The instructor in home economics plans to visit the clubs at least once a month and whenever possible twice a month. Courses for reading and study are outlined to cover ten to

twelve months and have to do with foods, household management, textiles and clothing, and the care and feeding of children.

Project No. 4: *Dairy Cow Test Associations.*

There are twelve dairy cow test associations in successful operation in the state. These organizations are playing an important part in improving diary conditions. Through these associations the dairy farmers are enabled to weed out unprofitable cows, they are encouraged to keep better stock, keep records of farming operations, and to feed their animals more judiciously and economically. This work reveals the truth to the dairy farmer.

A man is placed in charge of dairy cow test association work in the state to assist in the organizing of new associations, to work with the testers, to see that they are making the most of their opportunities, to be of service to the members of the associations, and to compile and publish the results of the work.

Project No. 5: *Orchard Demonstrations.*

New Hampshire is naturally an orchard state and there is a lot of interest being taken in all forms of fruit-growing. Orchard culture makes up an important branch of the agriculture of the state.

In order that the extension service may be of the greatest service to the fruit-growers of New Hampshire a man has been engaged to devote all of his time to carrying on orchard demonstrations and to giving instructions in fruit culture.

Pruning, spraying, and packing demonstrations are given at the proper season and definite forms of orchard demonstrations setting forth approved orchard practices are carried on in coöperation with practical growers of the state. Meetings are held in the demonstration orchards from time to time so that results may be noted.

Project No. 6: *Extension Schools.*

To meet the demand for assistance in community improvement work movable schools have been organized.

The schools are held preferably in some of the smaller rural communities as they seem to be especially appreciated in such localities. These schools last four days and the lectures and demonstrations are made just as practical as it is possible to make them. Wherever possible the demonstrations are given in the field, the orchard, or in a barn in the neighborhood.

The extension schools offer exceptional opportunities for the extension service to become acquainted with the people and the needs of the communities. Owing to the pleasant relations which are established through the medium of the schools it is possible to render still more valuable assistance to these neighborhoods through follow-up work.

Project No. 7: *Demonstrations in Vegetable Gardening.*

Vegetable gardening is a much neglected branch of farming in New Hampshire. Our manufacturing cities in the state create good markets. At present a large part of the vegetables consumed in our cities are grown outside the state.

For many reasons our market gardeners are not realizing from their labors and investments what they should. It is with a desire to be of service to some of those engaged in growing vegetables for market that an experienced and trained market gardener has been employed to work with the market gardeners in the vicinity of Manchester, Nashua, and Concord. The work is of a practical nature and the demonstration plots are carried on in coöperation with growers supplying vegetables for local markets.

It is hoped to show through these demonstration plots how the growers may meet more acceptably the demands of the local markets, and at the same time make it profitable for them to do so.

Project No. 8: *Farm Management Demonstrations.*

The New Hampshire State College is coöperating with the United States Department of Agriculture in making studies of the various systems of farm management in all

parts of the state in order to determine the best systems of farming for each locality.

Four hundred and fifty farm surveys have been made in eight counties. Most of these records have been returned to each individual farmer in the area covered by the survey in such a way that he can compare his own farm records with the average, and some of the best farms in that part of the state.

Project No. 9: *County Farm Home Demonstration Agents.*

The first two counties to organize for county agent work, Sullivan and Cheshire counties, were the first to organize a Woman's Auxiliary to the County Farmers Association and employ a woman agent. The county farm home demonstration agent has much the same relation to the farm home and the rural life in general that the county agent has to the farm work and general agricultural interests of the county. The local or county leader has an opportunity to become well acquainted with the people in the county and the greatest opportunities for serving the people. While some work is done with individuals a larger part of the teaching of the county home demonstration agent is done through groups of women and is in the form of demonstrations.

The farm home demonstration work promises to be as popular and as valuable as the county agent movement. The interest is spreading to other counties.

This covers in a brief way the plan of organization and lines of work which have been inaugurated with Smith-Lever funds for conducting extension work in agriculture and home economics in New Hampshire.

DEGREES AND HONORS, 1916.

MASTER OF SCIENCE.

Raymond Jackson Bean, B.S., 1915 ..... Laconia

BACHELOR OF SCIENCE.

Agricultural Division.

Ralph Josiah Bugbee ..... Claremont
Perry Warren Burt ..... Westmoreland
Walter Edwin Chamberlain ..... South Natick, Mass.
Dura Prescott Crockett ..... New London
Stephen Webster Dyer ..... Lawrence, Mass.
Frank Drew Ellsworth ..... Pembroke
John Corbin Hadley ..... Durham
Leon Abbott Hawkins ..... Plymouth
Wesley Everett Howard, Jr. ..... Belmont
Stephen Guy Johnson ..... Winchester
Everett Harmon Kelley ..... Barnstead
Misak Minas Mazmanian ..... Huseynig, Armenia
Westley Joseph Nelson ..... Manchester
Vincent Aubert Perkins ..... Claremont
Lewis Byron Robinson ..... Concord
Herbert Richard Runnals ..... West Lebanon
Albert Eaton Smith ..... Hudson
Victor Haskell Smith ..... Hudson
Joseph Albert Sullivan ..... Dover
William Thorpe Tapley ..... Revere, Mass.
Charles Adolph Weigel ..... Lawrence, Mass.

Arts and Science Division.

Guy Wetherbee Chase ..... Londonderry
Alice Veva Coffin ..... Boscawen
Rosina Martha Diettrich ..... Boston, Mass.
John Dana Lary ..... Berlin
Michael Riley McGreal ..... Somersworth
Lillian Wallace Mack ..... Derry
Philip Harlan Pennell ..... Suncook
James Alson Purington ..... Hopkinton
Bernice Reed ..... Claremont
Eldred Louis Sanborn ..... Lochmere
Carroll Charles Waldron ..... Center Strafford
Etta Seaward Waldron ..... Center Strafford
Olin Charles Work ..... Exeter

Engineering Division.

William Henry Barr ..... South Natick, Mass.
George Wilbur Burke ..... Concord
Ralph Waldo Doeg ..... Exeter
Edward Deering Fuller ..... Atkinson
Robert Foss Hayes ..... Dover
Norman Cannavan Hurd ..... Dover
Edward Clarence McDuffee ..... Claremont
Stephen Noyes Morse ..... Ashland
William Remick Partington ..... Portsmouth
Neil Abner Sargent ..... Concord
Kenneth Earl Sawyer ..... Manchester
George Thomas Studd ..... Berlin
Pitt Sawyer Willand ..... Dover

BACHELOR OF ARTS.

Harold Sunderlin Brown ..... Manchester
Lloyd Ridley Brown ..... Concord
Genevieve Adrienne Jeanette Charbonneau ..... Nashua
Melissa Annis Cilley ..... Colebrook
Mary Clementine Dole ..... Enfield
Florence Lillian Dudley ..... Reeds Ferry
Marion Grace Dudley ..... Newmarket
Bernard Henry Dwight ..... Manchester
Nettie Edith Austin Finley ..... Dover
Mildred Maleham Flanders ..... Rochester
Helen Agnes Hallisey ..... Nashua
Marion Ruth Jenness ..... Dover
Flavia Locke Jones ..... Exeter
Robert Irving McCartney ..... Kingston
Fred Sanford Manter ..... Manchester
Marion Edwena Mitchell ..... Newmarket
George Albert Nelson ..... Exeter
Charles Swett Pettee ..... Durham
Robert Carl Smith ..... Exeter
Harold Arthur Steele ..... Manchester
Earle Frederick Swett ..... Andover
Robert Jordan Torrey ..... East Putnam, Conn.
Walter Ira Waite ..... Concord
Paul Stanwood Ward ..... Milford
Nellie Lydia White ..... Enfield

TWO-YEAR CERTIFICATES.

Eloi Augustus Adams ..... Wellesley, Mass.
Neal Davis Andrew ..... Littleton

George Albert Bassett.....Fremont
Ellwood Vance Bennett.....Laconia
Robert Stebbins Callender.....Bethlehem
Dwight Edward Carlton.....Lancaster
Charles Henry Colby.....Franconia
Carl Elmer Crowley.....Ashland
Adna James Cutting.....Orford
Clark Edwin Davis.....Salem Depot
Harold Lowell Eastman.....Concord
Paul Baxter Gay.....New London
Arthur Ernest Goodrich.....Wolfeboro
Chester Earle Gould.....Newton Junction
Sidney James Green.....Munsonville
David Herbert Harling.....Jaffrey
Elmer Cutting Hughes.....Ashland
Harold Fay Hunt.....Lebanon
Elwyn Duane Joslyn.....Durham
William Augustus Megrath.....Loudon
Dean Bixby Merrill.....North Sutton
Edward James Norman, Jr.....Lee, Mass.
Raymond Alan Norris.....East Derry
Oscar Sigfred Olson.....Concord
Charles Wesley Poland.....Lebanon
Lee Laughna Rice.....Worcester, Mass.
Kenneth Samuel Russell.....Exeter
Allen Hyde Schoolcraft.....Cheever
Herbert Arthur Smith.....Newfields
Aretas Blood Sutherland.....Plymouth
Harold Franklin Swett.....Andover
Ralph Henry Turner.....East Jaffrey
Raymond Leavitt Turner.....North Reading, Mass.
Harlan Jefferson Whitcomb.....Brookline

HONOR LIST FOR 1916.

SPECIAL HONOR.

Average of 90 for the year's work.

1916.

Stephen Guy Johnson. Michael Riley McGreal.
Walter Ira Waite.

1917.

Phyllis Mary Blanchard. Marion Olive Chase.
Isabel Jane Fernald.

1918.

Ruth Whitney Hadley. Martha Luena Hoitt.

1919.

Mary Robinson Cressey Madeline Lona Pinkham
Dorothy Hanson. Louise Mary Richmond.

Two-Year Agriculture, Second Year.

Everett Woodman Webster.

HONOR.

Average of 85 for the year's work.

1916.

George Wilbur Burke. Leon Abbott Hawkins.
Genevieve A. J. Charbonneau. Wesley Everett Howard, Jr.
Melissa Annis Cilley. Lillian Wallace Mack.
Alice Veva Coffin. Charles Swett Pettee.
Dura Prescott Crockett. James Alson Purington.
Mary Clementine Dole. Neil Abner Sargent.
Marion Grace Dudley. Robert Jordan Torrey.
Stephen Webster Dyer. Pitt Sawyer Willand.

1917.

Goldie Basch. Frances Dorotha Hatch.
Vance Whiting Batchelor. Isabel Marie Morey.
Gladys Alice Brown. Arthur Richardson Morgan.
Arthur Samuel Burleigh. Henrietta Nudd.
Louise Elizabeth Burpee. Julia Aurelia Roberts.
Natalie Drew Ewer. Alberta Neal Steuerwald.
Alice Fernald. Clark Leavitt Stevens.

1918.

Charles Cummings. John Edwin Humiston.
Heman Charles Fogg. Elmer Nason Sanders.
Florence Julia Harris. Ethel May Walker.

Rollins Wentworth.

Henry Putney Bachelder.
Rollins Wentworth, } (As of 1915)

1919.

Esther Leavitt Carpenter.
Frank Adin Joy.
Alice Bowdoin Kemp.
Ada Caroline Langley.
Carl Frederick Matthes.
Palmer Bruce Place.
Miriam Sanders.
Karl Leland Wildes.

Special.

Harold Crawford Main.

Two-Year Agricultural, 1916.

Eloi Augustus Adams.
Arthur Ernest Goodrich.

Two-Year Agricultural, 1917.

Ralph Benton Emery.
George Cavis Minot.

Two-Year Engineering, 1917.

Wesley Watson.

PRIZE RECORD FOR 1916.

BAILEY PRIZE.

Given by Dr. C. H. Bailey, Class of '79 and E. A. Bailey, Class of '85.

Neil Abner Sargent, Concord.

ERSKINE MASON MEMORIAL PRIZE.

James Alson Purington, Hopkinton.

CHASE-DAVIS MEMORIAL MEDALS.

Gold Medal.

Eldred Louis Sanborn, Lochmere.

Silver Medal.

Charles Swett Pettee, Durham.

SENIORS STANDING HIGHEST IN MILITARY DEPARTMENT.

Dura Prescott Crockett, New London.

WINNERS OF INDIVIDUAL PRIZE DRILL.

Gold Medal.

Alfred Newman Graham.

Silver Medal.

Leroy Arthur Boutwell.

Bronze Medal.

Harvey Foss Jenkins.

PRIZE SABRE—EXCELLENCE IN DRILL.

Ray Towle Roberts, Concord.

SENIORS REPORTED TO ADJUTANT-GENERAL OF THE ARMY FOR APTITUDE IN MILITARY DEPARTMENT.

Dura Prescott Crockett, New London.
Walter Ira Waite, Concord.
George Wilbur Burke, Concord.

LILIAN S. EDWARDS PRIZE.

Goldie Basch, Ashuelot.

CHI OMEGA PRIZE.

Phyllis Mary Blanchard, Epping.

VALENTINE SMITH SCHOLARSHIPS.

Frances Dorotha Hatch, '17, Exeter.
Martha Luena Hoitt, '18, Durham.
Gladys Hoagland, '19, Durham.
John Bloomfield, '20, Dover.

ROSTER OF REGIMENT.

For 1916–1917.

COMMANDANT.

Captain S. J. Sutherland, United States Infantry.

CADET OFFICERS AND NON-COMMISSIONED OFFICERS FIELD AND STAFF.

Lieutenant-Colonel R. T. Roberts, *Commanding Regiment.*
Captain G. D. Parnell, *Adjutant.*
Captain E. S. Johnson, *Quartermaster.*
Captain L. A. Boutwell, *Range Officer.*

FIRST BATTALION.

Major W. P. Knox, *Commanding Battalion.*
First Lieutenant H. A. Russell, *Adjutant.*
Second Lieutenant A. N. Graham, *Quartermaster.*

BAND.

First Lieutenant E. S. Ross.

COMPANY A.

Captain K. C. Westover, *Commanding Company.*
First Lieutenant A. B. Whittemore.
Second Lieutenant P. B. Place.

COMPANY B.

Captain V. W. Batchelor, *Commanding Company.*
First Lieutenant R. D. Brackett.
Second Lieutenant R. J. Ewart.

COMPANY C.

Captain R. C. Wiggin, *Commanding Company.*
First Lieutenant E. N. Sanders.
Second Lieutenant R. H. Sawyer.

SECOND BATTALION.

Major W. H. Thomas, *Commanding Battalion.*
First Lieutenant J. D. Colomy, *Adjutant.*
Second Lieutenant C. A. Bennett, *Quartermaster.*

COMPANY D.

Captain C. B. Tibbetts, *Commanding Company.*
First Lieutenant P. B. Badger.
Second Lieutenant H. C. Atkins.

COMPANY E.

Captain S. W. Wentworth, *Commanding Company.*
First Lieutenant M. B. Lane.
Second Lieutenant H. C. Fogg.

COMPANY F.

Captain C. C. Bond, *Commanding Company.*
First Lieutenant, R. L. Dame.
Second Lieutenant R. P. Nevers.

SIGNAL PLATOON.

First Lieutenant R. L. Nelson.

STUDENTS, 1915–1916.

The number of hours toward graduation which each student has credited to him on the records in the Registrar's Office is given. The "course" shows the department in which the student registered for the second semester of this year, and under "P. O. Address," his residence at time of registration last fall.

The abbreviations indicating the course stand for the following departments:

a. h. and *d.*—Animal Husbandry and Dairy; *for.*—Forestry; *hort.*—Horticultural; *gen. a.*—General Agricultural; *agi.*—Freshmen and Sophomores in Agriculture; *ch. e.*—Chemical Engineering; *m. e.*—Mechanical Engineering; *e. e.*—Electrical Engineering; *a.* and *s.*—General Arts and Science; *h. e.*—Home Economics; *m. a. t.*—Mechanic Arts.

GRADUATES.

Name.	Course.	P. O. Address.
Gamash, Albert William,	*a.* and *s.*	*Manchester.*.
Grant, Arnold Jay,	*ch. e.*	*North Berwick, Me.*
Livingston, Arabella Schermerhorn,	*a.* and *s.*	*Ballston Lake, N. Y.*
Scherrer, John B.,	*agi.*	*Durham.*
Smith, Todd Orin,	*agi.*	*Carrollton, Ohio.*
Young, Harry P.,	*a.* and *s.*	*Durham.*

SENIORS.

Name.	Hours' Credit.	Course.	P. O. Address.
Anderton, Thomas Richard,	123	*e. e.*	*Dover.*
Archibald, Clyde Warren,	149	*e. e.*	*Portsmouth.*
Basch, Goldie,	124	*a.* and *s.*	*Ashuelot.*
Batchelor, Vance Whiting,	122	*a.* and *s.*	*Durham.*
Bennett, Frank Powers,	128	*ch. e.*	*Northwood.*
Bissell, Ralph Howard,	133½	*a.* and *s.*	*Keene.*
Blanchard, Phyllis Mary,	123	*a.* and *s.*	*Epping.*
Bond, Charles Chester,	115	*a.* and *s.*	*Lisbon.*
Brown, Gladys Alice,	115	*a.* and *s.*	*Franklin.*
Brown, Oscar Choate,	179½	*ch. e.*	*Lebanon.*
Burleigh, Arthur Samuel,	132	*e. e.*	*Ossipee.*
Burpee, Louise Elizabeth,	122	*h. e.*	*Manchester.*
Chase, Marion Olive,	121	*a.* and *s.*	*Seabrook.*
Clark, Malcolm Barrett,	104	*a.* and *s.*	*Bethlehem.*

Name.	Hours' Credit.	Course.	P. O. Address.
Colby, Rachel Clarenda,	111	*h. e.*	*New Boston.*
Colomy, James Daniel,	126	*for.*	*Durham.*
Colley, Leon Weston,	123½	*m. a. t.*	*Dana, Mass.*
Crouch, Leon Meader,	128½	*a.* and *s.*	*Durham.*
Cummings, Charles,	120½	*hort.*	*Colebrook.*
Cutts, Elmer Frank,	134	*e. e.*	*Manchester.*
Davis, Leland Worthen,	146½	*e. e.*	*Concord.*
Dudley, William Allen,	132	*e. e.*	*Colebrook.*
Dustin, Clifton Henry,	129	*m. a. t.*	*Rochester.*
Ewer, Natalie Drew,	127	*a.* and *s.*	*Dover.*
Fall, Beatrice Louise,	116	*a.* and *s.*	*Dover.*
Fernald, Alice,	119	*h. e.*	*Dover.*
Fernald, Isabel Jane,	119	*h. e.*	*Dover.*
Fitch, Frank Williams,	131	*a. h.* and *d.*	*Windsor, Vt.*
Frisbee, Joseph Elliot,	134	*e. e.*	*Portsmouth.*
Gillmore, Ralph Harold,	126	*m. a. t.*	*Concord.*
Glidden, Chester Willis,	132	*a. h.* and *d.*	*Alton Bay.*
Graham, Roy Charles Lemach,	132	*a.* and *s.*	*Epping.*
Griffin, Philip Joseph,	147	*a.* and *s.*	*Portsmouth.*
Hardy, Verna Carola,	122	*a.* and *s.*	*Concord.*
Harriman, Nathaniel Joy,	118	*a.* and *s.*	*Laconia.*
Hatch, Frances Dorotha,	127	*a.* and *s.*	*Exeter.*
Hayden, Philip Alden,	137	*a. h.* and *d.*	*Brookline.*
Hodgdon, Robert Edgar,	133	*e. e.*	*Rochester.*
Hoyt, Willis Hadley,	133	*a. h.* and *d.*	*Newington.*
Hussey, Ruth Janet,	111	*a.* and *s.*	*Rochester.*
Jenkins, Harvey Foss,	131	*gen. a.*	*Manchester.*
Johnson, Ellsworth Sheldon,	129	*hort.*	*Springfield, Vt.*
Johnson, Myrtle May,	117	*a.* and *s.*	*Reeds Ferry.*
Knox, Warren Penn,	124	*a. h.* and *d.*	*Dover.*
Lake, Leroy Moses,	135	*a. h.* and *d.*	*Brentwood.*
Lambert, Eleanor Hurst,	124	*a.* and *s.*	*Kittery Point, Me.*
Langley, Mary Anthony,	114	*h. e.*	*Durham.*
Little, Harold Benjamin,	134	*hort.*	*Colbrook.*
Lombard, Carl Weston,	126	*m. a. t.*	*Newburyport, Mass.*
Long, Edward,	123	*for.*	*Dover.*
Lord, Eugene Hodgdon,	122	*m. a. t.*	*Hopkinton.*
Meserve, Harlan Ray,	121	*a.* and *s.*	*Rochester.*
Nelson, Rufus Lawrence,	125	*e. e.*	*Tilton.*
Nichols, Earl Brazil,	135	*a. h.* and *d.*	*Newton.*
Nixon, Leonard Russell,	133	*a. h.* and *d.*	*Exeter.*
Nudd, Henrietta Carleton,	124	*h. e.*	*Hampton.*
Parker, Ralph Harthan,	135½	*a.* and *s.*	*Kingston.*

Name.	Hours' Credit.	Course.	P. O. Address.
Parnell, George Downes,	128	*e. e.*	*Manchester.*
Philbrick, Leonard Parker,	132½	*a.* and *s.*	*No. Hampton.*
Reed, Beatrice,	118	*h. e.*	*Claremont.*
Roberts, Julia Aurelia,	119	*h. e.*	*Toledo, Ohio.*
Roberts, Ray Towle,	130	*e. e.*	*West Concord.*
Robinson, Nathaniel Edwin,	128	*m. a. t.*	*Concord.*
Rollins, John Hooper,	127	*ch. e.*	*Dover.*
Ross, Edgar Samuel,	124	*ch. e.*	*Nashua.*
Russell, Hansel Arthur,	137	*a.* and *s.*	*Lebanon.*
Scruton, Herbert Ambrose,	141½	*a.* and *s.*	*Dover.*
Shannon, Clarice Henrietta,	123	*h. e.*	*Laconia.*
Steuerwald, Alberta Neal,	124	*h. e.*	*Dover.*
Stevens, Clark Leavitt,	137	*for.*	*Colebrook.*
Sussman, Joseph Abraham,	126	*a.* and *s.*	*Portsmouth.*
Swain, Howard Eugene,	150½	*m. e.*	*Exeter.*
Thomas, William Hervey,	136	*a. h.* and *d.*	*Durham.*
Tibbetts, Carleton Briggs,	109	*ch. e.*	*Somersworth.*
Tilton, Helen Florence,	117	*a.* and *s.*	*Auburn.*
Turcotte, Abby Jewett,	120	*h. e.*	*Lakeport.*
Wagner, Edgar Richard,	130	*ch. e.*	*Manchester.*
Wentworth, Sidney Warren,	125	*hort.*	*Hollis.*
Weston, Fred Webster,	118	*a.* and *s.*	*Lisbon.*
Weston, Helen Brown,	124	*h. e.*	*Lisbon.*
Westover, Kyle Chester,	131	*hort.*	*Manchester.*
Whittemore, Arthur Benjamin,	120	*a.* and *s.*	*Colebrook.*
Wiggin, Edwin Albert,	123	*m. a. t.*	*Exeter.*
Wiggin, Rohl Chase,	119	*a.* and *s.*	*Concord.*
Worcester, Mary Abbie,	121	*h. e.*	*Berwick, Me.*

JUNIORS.

Allen, Willard Increase, Jr.,	90	*a.* and *s.*	*Dover.*
Atkins, Harry Clifton,	95	*ch. e.*	*Franklin.*
Austin, Charles Oakley,	96	*gen. a.*	*Laconia.*
Bachelder, Henry Putney,	96	*a.* and *s.*	*East Andover.*
Badger, Phillips Brooks,	101	*a. h.* and *d.*	*Portsmouth.*
Baker, John Arthur,	93	*ch. e.*	*Claremont.*
Bartlett, Richard Cilley,	93	*e. e.*	*Derry Village.*
Batchelder, Philip,	86	*a.* and *s.*	*Durham.*
Bell, Ernest Lorne, Jr.,	77	*a.* and *s.*	*Plymouth.*
Bennett, Charles Alfred,	93	*a.* and *s.*	*Wakefield.*
Benson, Maurice Haynes,	86	*a. h.* and *d.*	*Lebanon.*
Blatchford, George Nason,	88	*a.* and *s.*	*Hampton Falls.*

Name.	Hours' Credit.	Course.	P. O. Address.
Boutwell, Leroy Arthur,	115	*m. e.*	*Concord.*
Brackett, Ralph deRochemont,	94	*hort.*	*Greenland.*
Bragdon, Doris Lillian,	90	*h. e.*	*Exeter.*
Brill, Milo Horace,	86	*a.* and *s.*	*Newport.*
Broderick, Charles Bernard,	96	*a. h.* and *d.*	*Exeter.*
Bugbee, Helen Marion,	78	*a.* and *s.*	*Claremont.*
Butterfield, Byron Goodwin,	95	*a. h.* and *d.*	*Antrim.*
Cahalane, Reginald Foster,	86	*a.* and *s.*	*Walpole.*
Came, Carleton Lord,	87	*ch. e.*	*Somersworth.*
Caswell, Henry Benson,	102	*m. a. t.*	*Barnstead.*
Clarke, Hugh Trescott,	78	*a.* and *s.*	*Canaan.*
Coburn, Charles Higgins,	97	*hort.*	*Tyngsborough, Mass.*
Coburn, Rodney Clyde,	96	*ch. e.*	*Lowell, Mass.*
Cushing, Mary Olive,	86	*h. e.*	*Concord.*
Dalton, Stanley Hatch,	93	*gen. a.*	*Nashua.*
Densmore, John Francis,	86	*a.* and *s.*	*Hanover.*
Dodge, James William,	87	*e. e.*	*Contoocook.*
Dreller, Louis,	95	*e. e.*	*Portsmouth.*
Durgin, Charles Butterworth,	95	*c. e.*	*Wilton.*
Durgin, John Frank,	86	*gen. a.*	*Newmarket.*
Eastman, Eva Emma,	91	*a.* and *s.*	*Concord.*
Flynn, Mildred Margaretta,	89	*a.* and *s.*	*Dover.*
Fogg, Heman Charles,	92	*ch. e.*	*Concord.*
Ford, Joseph Basil,	81	*a. h.* and *d.*	*Milford.*
Foss, Edith Emily,	86	*a.* and *s.*	*Dover.*
Furber, Josephine Marguerite	88	*h. e.*	*Laconia.*
Garland, Otis Raymond,	98	*gen. a.*	*Hampton.*
George, Maurice Channing,	94	*m. e.*	*Danville.*
Gilson, Marion Susan,	82	*a.* and *s.*	*Windham.*
Gove, Lucile Adeline,	81	*a.* and *s.*	*Durham.*
Graham, Alfred Newman,	91	*a.* and *s.*	*Henniker.*
Griswold, James Herbert,	91	*gen. a.*	*Durham.*
Hadley, Ruth Whitney,	88	*h. e.*	*Atkinson.*
Hardy, Ernest Winfield,	89	*gen. a.*	*Contoocook.*
Harris, Florence Julia,	88	*h. e.*	*Laconia.*
Hewey, Hilbert Goodrich, Jr.,	89	*a.* and *s.*	*Lewiston, Me.*
Hoitt, Martha Luena,	90	*h. e.*	*Durham.*
Howe, Fred John,	80	*a.* and *s.*	*Exeter.*
Howe, George Merrill,	79	*a.* and *s.*	*Contoocook.*
Humiston, John Edwin,	97	*a. h.* and *d.*	*Hanover Center.*
Huse, Irene Meyers,	89	*a.* and *s.*	*Laconia.*
Hutchinson, Perne Rawson,	104	*for.*	*Berlin.*
Hutchinson, Raymond Walch,	96	*gen. a.*	*Reed's Ferry.*

Name.	Hours' Credit.	Course.	P. O. Address.
Hyde, Lincoln Spencer,	89	*a. h.* and *d.*	*East Kingston.*
Ingerson, Della May,	87	*h. e.*	*Starrking.*
Irvine, Howard Thompson,	97	*a. h.* and *d.*	*Exeter.*
Jeffers, Weston Harvey,	102	*a. h.* and *d.*	*Pike.*
Jenkins, Rodney Solon,	93	*a. h.* and *d.*	*Barnstead.*
Jones, Russell Cyprian	91	*a.* and *s.*	*Exeter.*
King, Elsie Louise,	89	*h. e.*	*Dover.*
Lane, Merton Burgess,	86	*ch. e.*	*Ashburnham, Mass.*
Lary, Erma Masso,	85	*a.* and *s.*	*Portland, Me.*
Lynde, Leslie Eugene,	93	*e. e.*	*Dover.*
McConachie, Max,	92	*e. e.*	*Manchester.*
Martin, Giles,	80	*a.* and *s.*	*Manchester.*
Merrill, Lester Edwin,	85	*hort.*	*Lebanon.*
Merrill, Marguerite Mae,	81	*a.* and *s.*	*Nashua.*
Miltimore, John Everett,	88	*gen. a.*	*Derry.*
Morrill, Joseph Warren,	92	*hort.*	*Grafton.*
Morrill, Raymond Soule,	100	*a.* and *s.*	*Warren.*
Nevers, Ralph Poor,	79	*a.* and *s.*	*Salem, Mass.*
O'Brien, William Henry,	90	*e. e.*	*Boston, Mass.*
Ordway, Frederick Ira, Jr.,	79	*a.* and *s.*	*Manchester.*
Parsons, John Joseph,	91	*a.* and *s.*	*Somersworth.*
Perley, Sidney Harold,	83	*a. h.* and *d.*	*Durham.*
Richardson, Clesson Willard,	81	*a.* and *s.*	*Marlborough.*
Sanders, Elmer Nason,	94	*ch. e.*	*Durham.*
Sawyer, Lester Little,	85	*a.* and *s.*	*Durham.*
Sawyer, Robert Hamilton,	99	*a. h.* and *d.*	*Bradford, Mass.*
Scott, Susie Helen,	56	*a.* and *s.*	*Durham.*
Scovell, Earl Louis,	94	*for.*	*Haverhill, Mass.*
Sleeper, Clarence Wilson,	89	*a.* and *s.*	*Concord.*
Spencer, Archie McQuesten,	93	*m. e.*	*Plymouth.*
Stearns, Sam Loring,	98	*a. h.* and *d.*	*Manchester.*
Stimson, Robert Chapman,	91	*ch. e.*	*New London.*
Swain, Lewis Churchill,	93	*for.*	*Exeter.*
Wadleigh, Clarence Benjamin,	98	*gen. a.*	*Newton Junction.*
Walker, Ethel May,	88	*h. e.*	*Concord.*
Waterman, Clarence Stanley,	100½	*hort.*	*Durham.*
Wentworth, Rollins,	94	*e. e.*	*Dover.*
Whippen, Norman Francis,	95	*a. h.* and *d.*	*Kingston.*
Willand, Howard,	100	*hort.*	*East Wolfeboro.*
Winn, Hazel Searle,	85	*a.* and *s.*	*Dover.*
Young, Claiborne Hart,	97	*hort.*	*Wilton.*
Young, Priscilla Bertha,		*h. e.*	*Exeter.*

SOPHOMORES.

Name.	Hours' Credit.	Course.	P. O. Address.
Adams, Albert Warner,	49	*a.* and *s.*	*Alton.*
Adams, Eloi Augustus,	78½	*agi.*	*Wellesley, Mass.*
Ashford, Olive Irene,	44	*h. e.*	*Antrim.*
Atwood, Grace Etta,	48	*a.* and *s.*	*Worcester, Mass.*
Baker, Margaret Edna,	53	*h. e.*	*Littleton.*
Barker, Forrest Allen,	52	*ch. e.*	*Nashua.*
Bartlett, Edward Emery,	48	*e. e.*	*Derry.*
Belyea, Clement Chipman,	50	*ch. e.*	*Newfields.*
Benson, Priscilla,	44	*h. e.*	*Lebanon.*
Blodgett, Frank Hoben,	38	*ch. e.*	*Concord.*
Boomer, Stephen Henry,	56	*agi.*	*Cumberland Mills, Me.*
Brosnan, John Andrew,	52	*agi.*	*Thorndike, Mass.*
Brown, Charles Edward,	45	*a.* and *s.*	*Dover.*
Callender, Benjamin Richard,	51	*ch. e.*	*Bethlehem.*
Cann, Frederick Bowman,	76	*e. e.*	*Jaffrey.*
Carr, James Irvin,	53	*ch. e.*	*Hancock.*
Center, Mary Elizabeth,	55	*h. e.*	*Hudson.*
Chamberlin, Muriel,	47	*a.* and *s.*	*Berlin.*
Clapp, Arthur Everett,	46	*a.* and *s.*	*Portsmouth.*
Cochrane, Thomas Joseph,	56	*ch. e.*	*Ludlow, Mass.*
Colby, Oliver Messer,	38	*m. a. t.*	*Lakeport.*
Cressey, Mary Robinson,	50	*a.* and *s.*	*Dover.*
Cullinan, John Francis,	55	*ch. e.*	*Portsmouth.*
Dame, Ralph Leighton,	69	*a.* and *s.*	*Newport.*
Davis, Otto Winifred,	56	*agi.*	*Concord.*
Dimond, Blanche Farnum,	53	*h. e.*	*Concord.*
Doherty, Mildred Eva,	46	*h. e.*	*Derry.*
Dudley, Dorris,	29	*a.* and *s.*	*Reed's Ferry.*
Dustin, Cecil Calvert,	58	*agi.*	*Rochester.*
Eastman, Harold Lowell,	34½	*a.* and *s.*	*Concord.*
Edwards, Laurene Mary,	36	*a.* and *s.*	*Franklin.*
Emery, Henry Alfred,	46	*e. e.*	*Auburn.*
Ewart, Raymond James,	55	*agi,*	*Lawrence, Mass.*
Foster, Mabel Lydia,	51	*h. e.*	*Claremont.*
Fuller, Fred Bennell,	51	*a.* and *s.*	*Jefferson.*
Gale, Joseph Morrill,	48	*agi.*	*Concord.*
Garland, Oscar Leavitt,	45	*m. a. t.*	*Hampton.*
Glidden, Norman Frank,	53	*agi.*	*Alton Bay.*
Goss, Louis Stillman,	38	*a.* and *s.*	*Lakeport.*
Graham, Clifford Loyd,	31	*agi.*	*Epping.*
Gray, Walter Benson,	49	*e. e.*	*Rochester.*

Name.	Hours' Credit.	Course.	P. O. Address.
Greenfield, Sara Ella,	44	*a.* and *s.*	*Rochester.*
Hale, Dorothy Adeline,	52	*a.* and *s.*	*Dover.*
Hall, Fred William,	80	*agi.*	*Center Strafford.*
Hall, Irene Marguerite,	41	*a.* and *s.*	*Rochester.*
Hanson, Dorothy,	50	*a.* and *s.*	*Franklin.*
Harvell, Ralph Burbank,	43	*agi.*	*Laconia.*
Haseltine, Franklin Lowell,	78	*agi.*	*Reed's Ferry.*
Hilliard, William Russell,	53	*agi.*	*East Kingston.*
Hoagland, Gladys,	59	*a.* and *s.*	*Durham.*
Hoffman, Louis Benjamin,	53	*e. e.*	*Manchester.*
Horne, Chester Arthur,	48	*a.* and *s.*	*Rochester.*
Howard, Maurice Wilbur,	53	*a.* and *s.*	*Lebanon.*
Hunt, Cyril Thomas,	56	*ch. e.*	*Cornish Flat.*
Hunting, Ronald Walter,	65	*m. e.*	*Newport.*
Johnson, Maurice Harold,	41	*a.* and *s.*	*Manchester.*
Joy, Frank Adin,	56	*m. e.*	*Newfields.*
Kelleher, Mary Ethel,	51	*a.* and *s.*	*Dover.*
Kemp, Alice Bowdoin,	54	*h. e.*	*Kingston.*
Langley, Ada Caroline,	49	*a.* and *s.*	*Durham.*
Lewis, Marion Anna,	53	*h. e.*	*Littleton.*
Libby, Donald Whitney,	72	*agi.*	*Baldwinsville, Mass.*
Lovejoy, Ralph Locke,	54	*agi.*	*Nashua.*
McCarty, Mary Elizabeth,	51	*a.* and *s.*	*Dover.*
McKenney, Alfred Edwin,	56	*m. a. t.*	*Westbrook, Me.*
Matthes, Carl Frederick,	57	*ch. e.*	*Lawrence, Mass.*
Meader, Raymond Brackett,	54	*e. e.*	*Rochester.*
Moody, Alden Howard,	55	*ch. e.*	*Concord.*
Morrison, Lewis Willard,	51	*agi.*	*Berlin.*
Nightingale, Gordon Thayer,	57	*agi.*	*Moosup, Conn.*
Norrebard, Hans Jacob,		*e. e.*	*Christiania, Norway.*
Nudd, Willard Eugene,	56	*m. e.*	*Hampton.*
Osborne, Carver Haines,	73	*a.* and *s.*	*West Dennis, Mass.*
Owen, Wilfred Lester,	56	*ch. e.*	*Colebrook.*
Page, Oral Allen,	57	*agi.*	*Newton.*
Palmer, William Robert,	65	*e. e.*	*Berlin.*
Paul, Leslie Mathews,	39	*a.* and *s.*	*Dover.*
Perkins, Caroline May,	51	*a.* and *s.*	*Claremont.*
Perron, Herbert Vincent,	49	*e. e.*	*Goffs Falls.*
Pinkham, Madeline Lona,	54	*h. e.*	*Dover.*
Place, Palmer Bruce,	57	*ch. e.*	*Newmarket.*
Poland, Mary Flora,	46	*a.* and *s.*	*Lebanon.*
Prescott, Frank Williams,	51	*a.* and *s.*	*Pittsfield.*
Randall, Christine Flora,	53	*a.* and *s.*	*Campton.*

Name.	Hours' Credit.	Course.	P. O. Address.
Reardon, John Joseph,	50	*m. a. t.*	*Concord.*
Revene, Marcus Royal,	46	*a.* and *s.*	*Wheelwright, Mass.*
Rice, Lee Laughna,	54½	*a.* and *s.*	*Durham.*
Richmond, Louise Mary,	53	*a.* and *s.*	*Dover.*
Robb, Bernice Aurilla,	54	*h. e.*	*Durham.*
Rowe, Gilman Shaw,	35	*agi.*	*Exeter.*
Rumrill, Hamilton,	55	*m. a. t.*	*Hillsborough.*
Sanders, Miriam Augusta,	53	*h. e.*	*Rochester.*
Seawards, Susie Ethel,	53	*h. e.*	*Dover.*
Shedd, Hazelle Maud,	54	*h. e.*	*Rochester.*
Shillaber, John James,	53	*m. e.*	*Portsmouth.*
Shirley, Ralph Wellington,	56	*agi.*	*Fryeburg, Me.*
Shuttleworth, Melba Johnson,	54	*a.* and *s.*	*West Springfield, Mass.*
Shuttleworth, Wm. Edward,	56	*agi.*	*Portsmouth.*
Smith, Gertrude May,	52	*h. e.*	*Newfields.*
Smith, Howard Bruce,	47	*e. e.*	*Newport.*
Smith, Ivan Robinson,	37	*agi.*	*Hudson.*
Spencer, Franklin Hiram,	47	*e. e.*	*Cumberland Mills.*
Stafford, Henry Walton,	51	*e. e.*	*Berlin.*
Stafford, John Fremont,	55	*a.* and *s.*	*Berlin.*
Steeves, Lawrence Eugene,	55	*agi.*	*Strafford.*
Stevens, Ruth Lee,	53	*h. e.*	*Franconia.*
Strain, Murray Hartshorn,	47	*a.* and *s.*	*Groveton.*
Sutherland, Christine Jane,	50	*h. e.*	*Plymouth.*
Thompson, William Haven, Jr.,	50	*ch. e.*	*Atkinson.*
Tilton, Lewis Blake,	54	*agi.*	*East Kingston.*
Torrey, Prescott Hawes,	48	*agi.*	*Quincy, Mass.*
Trubey, Cyril Conrad,	57	*agi.*	*Dover.*
Wakefield, Clement Arthur,	44	*a.* and *s.*	*Biddeford, Me.*
Wetherbee, Emma Louise,	45	*h. e.*	*Milford.*
Wheeler, William Crawford,	56	*agi.*	*Starrking.*
White, Alpheus Britton,	48	*a.* and *s.*	*Peterborough.*
Wiggin, Ida Marion,	53	*h. e.*	*Dover.*
Wildes, Karl Leland,	56	*e. e.*	*Belmont.*
Williams, Katherine,	54	*h. e.*	*Exeter.*
Wright, Rena,	45	*h. e.*	*Lebanon.*
Young, Roland Jesse,	46	*a.* and *s.*	*Berlin.*

FRESHMEN.

Abbott, Howard Stanley,	18	*agi.*	*Wilton.*
Akerman, Wallace Sheldon,	16	*ch. e.*	*Portsmouth.*
Aldrich, Katherine Spurlin,	14	*a.* and *s.*	*Whitefield.*
Aulis, Clifford Elwin,	15	*a.* and *s.*	*Hanover.*

Name.	Hours' Credit.	Course.	P. O. Address.
Babson, Howard Abbott,	6	*e. e.*	*Berlin.*
Bailey, George Rex,	16	*m. e.*	*West Newbury, Mass.*
Bailey, Mary,	19	*a.* and *s.*	*Durham.*
Banister, Rolfe George,	18	*agi.*	*Colebrook.*
Barton, Helen Miller,	18	*h. e.*	*Seabrook.*
Bell, Leslie Samuel,	6	*a.* and *s.*	*Plymouth.*
Bellows, Charles Byron,	9	*agi.*	*Groveton.*
Bennett, Frank Mooney,	1	*a.* and *s.*	*Alton.*
Bickford, Gladys Charlotte,	18	*h. e.*	*Gonic.*
Billingham, George Harold,	14	*m. a. t.*	*Boston.*
Binks, Doris Reba,	16	*a.* and *s.*	*Franklin.*
Blair, David James, Jr.,		*agi.*	*Pelham.*
Blood, David Wallace,	5	*a.* and *s.*	*Lancaster.*
Blood, Glenn Heyward,	9	*a.* and *s.*	*Hanover.*
Blood, Kenneth Darwin,	8	*agi.*	*Claremont.*
Bloomfield, John,	18	*ch. e.*	*Dover.*
Booma, Frank,	15	*a.* and *s.*	*Portsmouth.*
Booth, George Guy,	18	*a.* and *s.*	*Laconia.*
Boutwell, Harley,	18	*a.* and *s.*	*Concord.*
Brierley, Philip,	18	*a.* and *s.*	*Stratham.*
Brooks, Beatrice Azelia,	17	*a.* and *s.*	*Dover.*
Brooks, Frank Arthur,	18	*ch. e.*	*Manchester.*
Brown, Arthur Butler,	15	*agi.*	*Newmarket.*
Brown, Esther Lucile,	17	*a.* and *s.*	*Newfields.*
Browne, Winnifred Pearl,	16	*a.* and *s.*	*Manchester.*
Bryant, Rachael Leone,	18	*h. e.*	*Portsmouth.*
Burleigh, Lucile Edna,	8	*a.* and *s.*	*Franklin.*
Burpee, Howard Ainsworth,	18	*ch. e.*	*Manchester.*
Butler, Frank Herbert,	14	*agi.*	*New London.*
Calef, Leon Chesley,	6	*e. e.*	*East Barrington.*
Carleton, Alden Lee,	11	*a.* and *s.*	*Goffstown.*
Chadwick, Marion Elizabeth,	18	*a.* and *s.*	*Boscawen.*
Chamberlain, Abiel Herbert,	18	*ch. e.*	*South Natick.*
Champaigne, Francis Michael,	2	*ch. e.*	*Keene.*
Chase, Ned Hamilton,	16	*m. a. t.*	*Hampton Falls.*
Cheney, Hayden Ezra,	2	*agi.*	*Newton Junction.*
Cheney, Walter Fremont,	14	*a.* and *s.*	*Pembroke.*
Christensen, Ernest Waldemar,	18	*agi.*	*Gloucester, Mass.*
Clarke, Daniel Willatowski,	15	*agi.*	*Schenectady, N. Y.*
Clay, Ansel Robie,	19	*a.* and *s.*	*East Andover.*
Clay, Norris Maitland,	18	*ch. e.*	*Watertown, Mass.*
Cole, Paul Cutting,	15	*agi.*	*Hillsboro Upper Village.*
Congdon, Neal Harrison,	14	*a.* and *s.*	*Lancaster.*

Name.	Hours' Credit.	Course.	P. O. Address.
Conner, Solon Dolloff,	12	*m. e.*	*Exeter.*
Cote, Margaret Sullivan,	17	*a.* and *s.*	*Nashua.*
Creasey, Norman Stewart,	18	*e. e.*	*Pittsfield.*
Cree, Leighton Joseph,	12	*agi.*	*Colebrook.*
Cross, Leon Forrest,	14	*a.* and *s.*	*Tilton.*
Cummings, Flora Belle,	18	*h. e.*	*Colebrook.*
Currier, Laurence Otis,	15	*a.* and *s.*	*Portsmouth.*
Currier, Leslie Charles,	18	*e. e.*	*North Conway.*
Currier, Maurice Emerson,	14	*a.* and *s.*	*Dover.*
*Cushing, Edwin Leon,	18	*ch. e.*	*Meredith.*
Davis, Arthur Franklin,	11	*a.* and *s.*	*Portsmouth.*
Davis, Mark Loyne,		*a.* and *s.*	*Warren.*
Dearborn, Hazel Ruth,	17	*a.* and *s.*	*Durham.*
Dearborn, Thomas Arnold,	10	*a.* and *s.*	*Dover.*
Dodge, Howarth Jacques,		*m. e.*	*Dover.*
Donohoe, Helen Bernadine,	18	*a.* and *s.*	*Waltham, Mass.*
Donovan, John Cyril,	7	*a.* and *s.*	*Groveton.*
Dunn, Ralph Champlin,	18	*agi.*	*Mattapoisett, Mass.*
Edgerley, Evangeline Hester,	19	*a.* and *s.*	*Newmarket.*
Elkins, Dorice White,	18	*h. e.*	*Hampton Falls.*
Emery, Frederic Hanscom,	18	*ch. e.*	*East Rochester.*
Emery, Ralph Benton,	51½	*agi.*	*Melrose, Mass.*
Erskine, Guy Harvey,	16	*e. e.*	*Manchester.*
Ewer, Everett Donald,	30	*a.* and *s.*	*Dover.*
Farnham, Roger Eugene,	24	*agi.*	*Somerville, Mass.*
Farnum, Everett Hollis,	8	*a.* and *s.*	*Suncook.*
Felker, Harold Perkins,	8	*agi.*	*Meredith.*
Fenderson, Kendrick Elwell,	40	*a.* and *s.*	*Dover.*
Field, Richard Francis,	5	*a.* and *s.*	*Nashua.*
Fitch, Harold Wakefield,	18	*a.* and *s.*	*Claremont.*
Fitts, Perley Irving,	17	*agi.*	*Etna.*
Flanders, David James,	18	*ch. e.*	*Manchester.*
Foss, Philip Watson,	4	*m. e.*	*Dover.*
Foster, Russell Chase,	16	*m. e.*	*Arlington, Mass.*
Fowler, William Donald,	13	*agi.*	*Durham.*
Fox, Gordon Lloyd,	18	*a.* and *s.*	*Lisbon.*
Friel, Michael James,	13	*a.* and *s.*	*Walton.*
Gardner, Celia Hubbard,	17	*h. e.*	*New London.*
Gardner, Eleanor Rebecca,	17	*a.* and *s.*	*Hillsboro.*
Garry, George,		*agi.*	*Nashua.*
Gaw, Harold Edmund,	18	*e. e.*	*Manchester.*
Glidden, Adelaide Erdene,		*a.* and *s.*	*Epping.*

* Deceased. Jan. 31, 1917

Name.	Hours' Credit.	Course.	P. O. Address.
Golding, Norman Randall,	23	*agi.*	*Biddeford, Me.*
Gonya, John Edmund,	12	*a.* and *s.*	*Berlin.*
Gove, Norris Dickinson,	18	*m. e.*	*Raymond.*
Graham, Edward Dewey,	9	*a.* and *s.*	*Newington.*
Graney, William Francis,	15	*ch. e.*	*Keene.*
Green, Marjorie Linwood,	15	*a.* and *s.*	*Rochester.*
Greer, Raymond Chase,	7	*a.* and *s.*	*Grasmere.*
Haggerty, William Jennings,	15	*e. e.*	*Nashua.*
Hall, Alfred,	14	*agi.*	*Edgartown, Mass.*
Ham, Harold Rudman,	12	*agi.*	*Dover.*
Hanson, Chester Pearl,	17	*a.* and *s.*	*Alton.*
Harling, Harry Jonathan,	18	*agi.*	*Jaffrey.*
Harris, Arthur Eugene,	18	*ch. e.*	*Concord.*
Harris, Carl Winifred,	21	*ch. e.*	*Worcester, Mass.*
Hartwell, Robert William,	5	*agi.*	*Littleton, Mass.*
Hatch, Horace McNeill,	38	*agi.*	*Lebanon.*
Hatch, Wallace Everett,	15	*a.* and *s.*	*Kennebunk, Me.*
Hayes, Allen Nowell,		*m. e.*	*Dover.*
Hayes, Ethelle Meserve,	18	*h. e.*	*Dover.*
Herlihy, Abby Katherine,	13	*a.* and *s.*	*Derry Village.*
Hervey, Albert Charles,	7	*a.* and *s.*	*Newfields.*
Hicks, Albert Ernest,	15	*e. e.*	*Dover.*
Hill, Benjamin Franklin,	18	*ch. e.*	*Somersworth.*
Hill, William Rodney,	18	*agi.*	*Concord.*
Hobbs, Ethel Mae,	17	*a.* and *s.*	*Somersworth.*
Hodgdon, Edith Mildred,	17	*a.* and *s.*	*Rochester.*
Holden, Ellen Grace,	18	*a.* and *s.*	*Colebrook.*
Howard, Hubbard Everett,	12	*agi.*	*Pike.*
Hoyt, John Barton,	15	*m. e.*	*Laconia.*
Huse, Walter Daniel,	16	*m. e.*	*Laconia.*
Hutchins, Roger Dennett,	18	*e. e.*	*Northwood Ridge.*
Jenness, Judith Varney,	17	*a.* and *s.*	*Dover.*
Jenness, Leslie George,	18	*ch. e.*	*South Danbury.*
Jones, Leon Charles,	38½	*agi.*	*Durham.*
Jones, Lucie Jeannette,	18	*h. e.*	*Milton.*
Joy, Grace Mae,	16	*a.* and *s.*	*Newmarket.*
Junkins, Frank Leroy,	9	*m. a. t.*	*Exeter.*
Kelley, Florence Aura,	18	*h. e.*	*Plaistow.*
Kendall, Edmund Miller,	8	*a.* and *s.*	*Manchester.*
Kenyon, Franklin Perry LaDieu,		*e. e.*	*Greenwood, Mass.*
Kimball, Richard Henry,	43½	*agi.*	*Manchester.*
Kling, Frances,	14	*a.* and *s.*	*Concord.*
Ladd, Frank Watson,	18	*e. e.*	*Contoocook.*

Name.	Hours' Credit.	Course.	P. O. Address.
Ladd, Harold Marden,	18	*ch. e.*	*Bristol.*
Lane, Chester Linward,	18	*ch. e.*	*Concord.*
Laflamme, Frank Xavier,	12	*a.* and *s.*	*Manchester.*
LaMontagne, Ovide Romeo,	6	*m. e.*	*Rochester.*
Langley, Marland George,	12	*a.* and *s.*	*Durham.*
Langley, Mildred Mae,	16	*a.* and *s.*	*Durham.*
Leavitt, Ernest Lester,	5	*ch. e.*	*Newport.*
Leavitt, Harold Irving,	18	*agi.*	*Lowell, Mass.*
Lewis, Clayton William,	23	*a.* and *s.*	*Lebanon.*
Lewis, Miriam,	17	*a.* and *s.*	*Chester.*
Litch, Richard Corning,	18	*e. e.*	*Exeter.*
Lougee, Arlo Roy,	18	*m. e.*	*Laconia.*
Lovejoy, Theodore Russell,	11	*e. e.*	*Conway.*
Lowe, Carroll Henry,	18	*a.* and *s.*	*Alton.*
MacDonald, Ray Archibald,	18	*e. e.*	*Manchester.*
Manter, Ralph M.,	23	*a.* and *s.*	*Manchester.*
Marsh, Murray Bryan,	13	*a.* and *s.*	*Canaan, Vt.*
McGinn, John Thomas,	18	*agi.*	*Rochester.*
McIntyre, Sidnie Margaret,	18	*h. e.*	*Manchester.*
McNall, Charles Ivan,	14	*a.* and *s.*	*Malden, Mass.*
McQuesten, Ruth Carolyn,	18	*h. e.*	*Manchester.*
Meader, Carleton Eugene,		*m. e.*	*Rochester.*
Melville, George Donald,	18	*a.* and *s.*	*Hyde Park, Mass.*
Meras, Norman Eugene,	18	*e. e.*	*Exeter.*
Merrill, David Lee,	18	*e. e.*	*Lakeport.*
Meserve, Jessica Frances,	18	*h. e.*	*Dover.*
Meserve, Winthrop Emerson,	28	*agi.*	*Durham.*
Mitchell, Basil Joseph,	15	*e. e.*	*Nashua.*
Moore, Hazel Belle,	7	*a.* and *s.*	*Loudon.*
Morrill, Clyde Rex,	15	*a.* and *s.*	*Dover.*
Morrison, Cecil Allister,	16	*ch. e.*	*Rochester.*
Morse, Howard Warren,		*e. e.*	*New London.*
Moulton, Mary Elizabeth,		*a.* and *s.*	*Buckland, Mass.*
Murphy, Helen Ann,	18	*ch. e.*	*Concord.*
Nelson, Daniel Horace,	15	*agi.*	*Franconia.*
Newbold, Douglas Rudkin,		*ch. e.*	*Concord.*
Newman, Derwood Austin,	18	*ch. e.*	*Lancaster.*
Norris, Edith Priscilla,	20	*h. e.*	*East Derry.*
O'Leary, Christopher James, Jr.,	16	*a.* and *s.*	*Newfields.*
O'Neil, Robert Emmett,		*m. a. t.*	*Nashua.*
Osborne, Charles Roland,	36	*a.* and *s.*	*Pittsfield.*
Otis, Rena Frances,	10	*a.* and *s.*	*Rochester.*
Paterson, Frank Edward,	11	*a.* and *s.*	*Portsmouth.*

Name.	Hours' Credit.	Course.	P. O. Address.
Patten, Gordon Willis,	15	*a.* and *s.*	*Manchester.*
Paul, Samuel H.,	18	*m. e.*	*Wakefield.*
Pelton, Winslow Lyle,	32	*a.* and *s.*	*Lancaster.*
Pentland, Roger,	8	*a.* and *s.*	*Nashua.*
Perkins, Charles Gladstone,	16	*m. e.*	*Portsmouth.*
Pichette, Edward Albert,	18	*ch. e.*	*Concord.*
Pierce, Walter Raymond,	16	*m. e.*	*West Springfield, Mass.*
Pike, Otis William,	18	*m. e.*	*Antrim.*
Pingree, George Nathan,	18	*e. e.*	*New London.*
Plaisted, Guy Edgar,	18	*e. e.*	*Portsmouth.*
Plummer, Dwight Hall,	7	*a.* and *s.*	*Milton.*
Plummer, Ray,		*a.* and *s.*	*Milton.*
Prescott, Frank Dunning,	11	*e. e.*	*Franklin.*
Prescott, Mildred Perry,	18	*a.* and *s.*	*Auburn.*
Ramsay, Ira Allan, Jr.,	9	*agi.*	*Colebrook.*
Reed, John Ephraim,	15	*a.* and *s.*	*Concord.*
Reid, Walter Davis,	15	*e. e.*	*Berlin.*
Reynolds, Addie Louise,	13	*a.* and *s.*	*Rochester.*
Richardson, Charles Wesley,	12	*a.* and *s.*	*Barnstead.*
Rogers, Urban Charles,	18	*a.* and *s.*	*Berlin.*
Rogers, Walter Eugene,	36	*a.* and *s.*	*Sanbornville.*
Rumford, Clarence Henry,	15	*agi.*	*Newfields.*
Ryan, Eugene Lockwood,	6	*e. e.*	*Sound Beach, Conn.*
Salcedo, Salgar Hernando,	2	*agi.*	*Bogota, Columbia, S. A.*
Sawyer, Charles Gorham,	12	*a.* and *s.*	*Durham.*
Saxton, Marjorie May,	18	*a.* and *s.*	*Manchester.*
Scammon, Chester Allen,	18	*e. e.*	*Stratham.*
Sewall, Frank Albert,	22	*agi.*	*Newmarket.*
Shannon, Edwin Howe, Jr.,	16	*a.* and *s.*	*Laconia.*
Shannon, Jennie Mae,	17	*a.* and *s.*	*Epping.*
Sharpe, Abraham B.	8	*a.* and *s.*	*Nashua.*
Shum, Raymond Edward,	9	*m. a. t.*	*Dover.*
Sleeper, Frank Dewey,	13	*m. e.*	*Lakeport.*
Smart, Isabelle Ellen,		*h. e.*	*Durham.*
Smith, Arthur Deane,	15	*agi.*	*Andover.*
Smith, Carl Davis,	4	*agi.*	*Ashland.*
Smith, Deborah Beatrice,	18	*h. e.*	*Newfields.*
Smith, Edward Emerson,	18	*agi.*	*Mason.*
Snow, Frank Sherman,	6	*m. e.*	*Portsmouth.*
Soper, Otis Edmond,	29	*e. e.*	*W. Somerville, Mass.*
Spinney, Willard Ellsworth,	18	*ch. e.*	*Concord.*
Sprague, Daniel Lawrence,	16	*e. e.*	*Haverhill, Mass.*
Steele, James Fiddes,	18	*a.* and *s.*	*Concord.*

Name.	Hours' Credit.	Course.	P. O. Address.
Stevens, George Orson,	1	*agi.*	*Colebrook.*
Stevens, George Ralsey,	20	*a.* and *s.*	*New Canaan.*
Stewart, Elmer Wadsworth,	18	*a.* and *s.*	*Hanover.*
Stott, George Phillip,	18	*ch. e.*	*Portsmouth.*
Struthers, Francis William,	11	*a.* and *s.*	*Townsend, Mass.*
Stryker, Phebe Key,	17	*a.* and *s.*	*George's Mills.*
Sughrue, Esther,	15	*a.* and *s.*	*Nashua.*
Sullivan, Marie Theresa,	7	*a.* and *s.*	*Dover.*
Sultaire, Harriett Elizabeth,		*h. e.*	*Plaistow.*
Sumner, Larra Thornton,	5	*agi.*	*Canton, Mass.*
Sweetser, Harold Caswell,	12	*a.* and *s.*	*Portsmouth.*
Swett, Leon Merrill,	12	*e. e.*	*Berwick, Me.*
Tapley, Roland William,		*ch. e.*	*Lewiston, Me.*
Taylor, Warren Howard,	12	*a.* and *s.*	*Stamford, Conn.*
Thayer, Guy Webster,	18	*ch. e.*	*Harrisville.*
Thomas, Michael Simon,	18	*e. e.*	*Durham.*
Thompson, Elmer John,	15	*agi.*	*Contoocook.*
Timmons, Patrick Joseph,	12	*a.* and *s.*	*Portsmouth.*
Tokarski, Kazimierz Wladyslaus,	18	*agi.*	*Windsor Locks, Conn.*
Twaddle, Arthur Eastman,	16	*m. e.*	*Manchester.*
Veazey, John William,	4	*a.* and *s.*	*Groveton.*
von Tobel, Julian Miller,	8	*a.* and *s.*	*Lebanon.*
Vose, Milton Reynolds,	12	*a.* and *s.*	*Concord.*
Wallace, Grace Ireland,	18	*h. e.*	*Manchester.*
Wallace, Thomas Henry Joseph,	8	*a.* and *s.*	*Somersworth.*
Wallis, Ralph Joseph,	15	*ch. e.*	*Laconia.*
Wasgatt, Hazel Lillian,	18	*h. e.*	*Kittery, Me.*
Wentworth, Hazel Frances,		*a.* and *s.*	*Farmington.*
Wentworth, Russell Gerrish,	11	*a.* and *s.*	*Farmington.*
Whipple, Gladys Louise,	12	*h. e.*	*Lebanon.*
Whitman, Robert Charles,	30½	*agi.*	*Drewsville.*
Wilkinson, Charles Henry,	18	*agi.*	*Murray, C. B., N. S.*
Willard, Floyd Dean,		*a.* and *s.*	*Claremont.*
Williams, Charles Heartley,		*agi.*	*Exeter.*
Williams, Isaac Langley,	15	*ch. e.*	*Exeter.*
Williamson, Ernest Barrett,		*a.* and *a.*	*Brookline, Mass.*
Wirt, Williston,	15	*a.* and *s.*	*Wellesley Hills, Mass.*
Wright, Howard Holmes,	8	*m. a. t.*	*Strafford.*
Young, Mabel Culver,	15	*h. e.*	*Portsmouth.*
Young, Ralph Joy,	18	*agi.*	*Dover.*

SECOND YEAR TWO-YEAR MEN.

Name.	Hours' Credit.	Course.	P. O. Address.
Abbott, Roland Webster,	55	*agi.*	*Hudson.*
Ames, Roger Morrill,	59	*agi.*	*Lakeport.*
Brien, Armand Alfred,	55	*e. e.*	*Manchester.*
Cate, Eben Woodman,	59	*agi.*	*Laconia.*
Cofran, Dustin Charles,	54	*agi.*	*Manchester.*
Colcord, John Edward,	58	*agi.*	*Derry.*
Dearborn, Lelle Francis,	51	*e. e.*	*Epping.*
Doyle, Peter James, Jr.,	58	*agi.*	*Hampton Falls.*
Eastman, James,	56	*agi.*	*West Canaan.*
Ellis, Joseph Harvey,	61	*agi.*	*West Somerville, Mass.*
Fellows, Weldon Harris,	52	*e. e.*	*Laconia.*
Forbush, Cyril Winthrop,	55	*agi.*	*Newton, Mass.*
Foss, Arthur Lester,	57	*agi.*	*Tilton.*
French, Leo Copp,	58	*agi.*	*Tilton.*
Gilson, Henry Earl,	57	*agi.*	*Windham.*
Hardy, Robert Harrison,	56	*e. e.*	*Somerville, Mass.*
Holbrook, Holman Arcsel,	51	*agi.*	*Colebrook.*
Johnson, Robert,	55	*e. e.*	*Manchester.*
Laugher, Horace Batava,	57	*agi.*	*Worcester, Mass.*
Leonard, George Wesley,	56	*agi.*	*Piermont.*
McIntyre, Grover Clifton,	57	*agi.*	*Dover.*
Merrill, Henry Hubert,	64	*agi.*	*Littleton.*
Merrill, Roger Moulton,	57	*agi.*	*Hampton Falls.*
Minot, George Cavis,	60	*agi.*	*Bath.*
Paine, Gardner Lloyd,	39	*e. e.*	*Berlin.*
Peterson, Albert,	62	*agi.*	*Raymond.*
Petmezas, Constentin,	58	*agi.*	*Portsmouth.*
Pettigrew, Herman Elroy,	44	*e. e.*	*Portsmouth.*
Potter, Francis Taylor,	52	*e. e.*	*Mountainview.*
Ries, Waldo,	51	*agi.*	*New York, N. Y.*
Roberts, Leon Lester,	54	*e. e.*	*Portsmouth.*
Rose, Herbert Adams,	52	*agi.*	*Andover, Mass.*
Rounds, Ward Barton,	61	*agi.*	*West Milan.*
Sanborn, Morrill Joseph,	54	*agi.*	*Rochester.*
Shaw, Herman Weare,	40	*agi.*	*Exeter.*
Smith, Dwight George,	62	*agi.*	*Nashua.*
Webster, Everett Woodman,	64	*agi.*	*Medford, Mass*
Williams, John Charles,	54	*agi.*	*Peterborough.*

FIRST TWO-YEAR MEN.

Name.	Hours' Credit.	Course.	P. O. Address.
Allen, Warren Harmon,	18	*e. e.*	*Waterville.*
Andrew, Edwin John,	45	*agi.*	*Concord.*
Ball, James Norman,		*agi.*	*Berlin.*
Bond, Henry William,		*agi.*	*Niantic, Conn.*
Corcoran, Harold Joseph,	1	*agi.*	*Winthrop, Mass.*
Davis, Homer Cleveland	18	*agi.*	*Colebrook.*
Derby, Jarvis,	8	*agi.*	*Concord, Mass.*
Doyle, Bartholomew Walter,	13	*agi.*	*Worcester, Mass.*
Drake, Maurice Jonathan,		*agi.*	*Northwood Ridge.*
Eastman, Edward Lee, Jr.,	18	*e. e.*	*Kearsarge.*
Fairchild, Edward Thomson, Jr.,		*e. e.*	*Durham.*
Faulkner, Lester Roy,	11	*e. e.*	*West Swanzey.*
Felker, Louis Keith,	13	*agi.*	*Meredith.*
Fisher, Norman Albert,	4	*agi.*	*Rochester.*
Flanders, David James,		*agi.*	*Manchester.*
Fletcher, Herman Russell,	22	*agi.*	*Plymouth.*
Follansbee, Harry Mayoh	22	*agi.*	*Enfield.*
Folsom, Shirley Frank,	10	*agi.*	*Boscawen.*
Gardner, Richard Hosmer,	19	*agi.*	*Nashua.*
Gautro, Chester Leonard,	6	*agi.*	*Northwood Ridge.*
Glanville, Trueworthy,	14	*agi.*	*Contoocook.*
Hannum, William Portor,	17	*e. e.*	*Ludlow, Mass.*
Harper, Richard Shackley,	17	*e. e.*	*Biddeford, Me.*
Harris, George Webster,	19	*agi.*	*Pelham.*
Hawkes, William Valentine,	16	*e. e.*	*Sound Beach, Conn.*
Hill, Orton Francis,	19	*agi.*	*Warner.*
Holt, Henry Cutter,	17	*e. e.*	*Epping.*
Huntley, Harold Ellwood,		*agi.*	*Manchester.*
Jones, Eben Parker,	19	*agi.*	*Hillsboro Center.*
Keach, Sam Neal,		*agi.*	*Colebrook.*
Martin, Horace Sawyer,	31	*agi.*	*Warner.*
McGrahaghan, Francis Philip,		*e. e.*	*Manchester.*
Prentiss, Fred Robert,	32	*agi.*	*Alstead.*
Ruggles, Louis Orcutt,	22	*agi.*	*Furnace, Mass.*
Russell, William Arthur,	19	*agi.*	*Newtonville, Mass.*
Sanders, Robert Carl,	18	*agi.*	*Dover.*
Schoff, Ray Edwin,	19	*agi.*	*Pittsburg.*
Smalley, Maxwell William,	28	*agi.*	*Walpole.*
Smith, Harold Boynton,	13	*m. e.*	*Manchester.*
Thompson, Philip McGrath,	18	*e. e.*	*New Ipswich.*
Tolman, Gordon Francis,	9	*agi.*	*Chesham.*

Name.	Hours' Credit.	Course.	P. O. Address.
Trask, Edward Prankard,	12	*m. e.*	*Warner.*
Tyler, Lee Cartland,	17	*e. e.*	*Barrington.*
Uhrlaub, John Christopher, Jr.,		*e. e.*	*Stamford, Conn.*
Wagner, B. Lloyd,	19	*agi.*	*Waban, Mass.*
Weare, Joseph Albert,		*agi.*	*Ogunquit, Me.*
Weeks, Maitland Batchelder,	19	*agi.*	*Gilmanton.*
Whipple, Earl Cass,	22	*agi.*	*Goffstown.*

SPECIALS.

Boomer, Marjory Ramsdell,	31	*a.* and *s.*	*Dover.*
Fletcher, Alice,	13	*agi.*	*Concord.*
Gould, John Harold,		*agi.*	*Union.*
Park, Katherine L.,		*agi.*	*Warren.*
Taggart, Alice Maude,		*a.* and *s.*	*Peterborough.*
Watson, Wesley,	27	*eng.*	*Manchester.*
Weigel, Frederick Albert,	24	*eng.*	*Durham.*

DISTRIBUTION OF REGISTRATION, 1916–1917.

	Students	Population 1910 Census	Population per Student	Square Miles in County	Square Miles per Student	Per cent of Student Body from Each Section	
Belknap	39	21,309	546	397	10	6.0	
Carroll	10	16,316	1,631	955	95	1.5	
Cheshire	14	30,659	2,187	728	52	2.1	
Coös	43	30,753	715	1,798	42	6.5	
Grafton	47	41,652	886	1,729	36	7.2	
Hillsborough	88	126,072	1,432	895	10	13.2	
Merrimack	71	53,335	751	932	13	10.5	
Rockingham	123	52,188	424	691	6	18.6	
Strafford	123	38,951	317	379	3	18.3	
Sullivan	15	19,337	1,289	527	35	2.1	
Massachusetts	57					8.6	N. E. outside of N. H., 12.4%
Connecticut	8					1.1	
Maine	16					2.2	
Vermont	3					.5	
Ohio	3					.5	
New York	3					.5	
Nova Scotia	1					.2	
Norway	1					.2	
South America	1					.2	
	666						

SUMMARY OF REGISTRATION, 1916–1917.

Compared with Registration Figures for Previous Year.

	Agricultural.										Arts and Science.						Engineering.						Men.		Women.		Total.	
	Reg.		A.H.&D.		For.		Gen.		Hort.		Gen.		H.E.		M.A.T.		C.E.		E.E.		M.E.							
	'16 '17	'15 '16	'16 '17	'15 '16	'16 '17	'15 '16	'16 '17	'15 '16	'16 '17	'15 '16	'16 '17	'15 '16	'16 '17	'15 '16	'16 '17	'15 '16	'16 '17	'15 '16	'16 '17	'15 '16	'16 '17	'15 '16	'16 '17	'15 '16	'16 '17	'15 '16	'16 '17	'15 '16
Seniors	...	...	9	12	3	...	1	7	5	3	29	30	13	5	7	5	6	4	11	8	1	2	60	59	25	17	85	76
Juniors	...	...	14	9	3	4	9	4	7	4	34	27	10	14	1	8	9	6	7	13	3	1	76	64	21	26	97	90
Sophomores	27	40	....	....	....	....	....	....	....	....	38	32	21	12	5	3	13	13	13	11	4	3	82	93	39	21	121	114
Freshmen	48	32	....	....	....	....	....	....	....	....	108	52	20	25	6	4	29	15	28	22	19	12	203	117	55	45	258	162
Total 4-year Students	75	72	23	21	6	4	10	11	12	7	209	141	64	56	19	20	57	38	59	54	27	18	421	333	140	109	561	442
Total by Divisions	...	...	....	....	....	....	....	....	126	115	...	...	....	....	292	217	....	....	....	....	143	110	....	....	....	....	....	....
Graduates	3	2	....	....	....	....	....	....	....	....	2	2	....	....	....	....	1	1	....	....	....	....	5	4	1	1	6	5
2d Two-year	29	47	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	19	....	....	....	38	47	....	....	38	47
1st Two-year	34	71	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	12	30	2	9	48	110	....	....	48	110
Specials	3	4	....	....	....	....	....	....	....	....	2	6	....	....	....	1	....	2	2	1	....	....	3	11	4	3	7	14
Winter Short Courses	6	35	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6	35	....	....	6	35
Totals	150	231	23	21	6	4	10	11	12	7	213	149	64	56	19	21	58	41	82	85	29	27	521	540	145	113	666	653
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